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ABSTRACT

This annual report of the Assembly of Life Sciences (ALS) covers the fiscal year from July 1, 1978 to June 30, 1979. The report has four major sections: (1) Special Programs of the Executive Office; (2) Division of Biological Sciences; (3) Division of Medical Sciences; and (4) Board on Toxicology and Environmental Health Hazards. The activities within each section are listed alphabetically and discussed in the text. A list of all reports completed during the year by ALS members is given at the end of the report as well as a list of the Assembly of Life Sciences Corresponding Societies. (Author/SA)

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1978-1979 Report

ASSEMBLY OF LIFE SCIENCES
NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY OF SCIENCES
Washington, D.C. 1979

SE 029 899

PREFACE

This annual report of the Assembly of Life Sciences (ALS) covers the fiscal year beginning July 1, 1978, and ending June 30, 1979. Although brief histories of some committees have been given as background for their activities during this reporting period, the lists of meetings, members, and reports and the statements of accomplishments reflect productivity only for the abovementioned period. Activities that continue beyond June 30, 1979, are identified. All meetings were held in Washington, D.C., unless otherwise shown.

This report has four major sections: on the Executive Office, the Division of Biological Sciences, the Division of Medical Sciences, and the Board on Toxicology and Environmental Health Hazards. The activities in each section are listed alphabetically insofar as possible. Organization charts at the beginning of each section show the structure within the ALS and the Assembly's relation to the National Academy of Sciences (NAS).

For further information on committee membership, consult the 1979 Directory of the ALS. Details concerning committee deliberations and conclusions can be found in the formal individual committee reports, which are available in most cases from the Assembly office, the NAS Office of Publications (formerly the Printing and Publishing Office), or the National Technical Information Service (NTIS).

A list of all reports completed by ALS committees during the year and a list of the Corresponding Societies of the Assembly are found at the end of this report.

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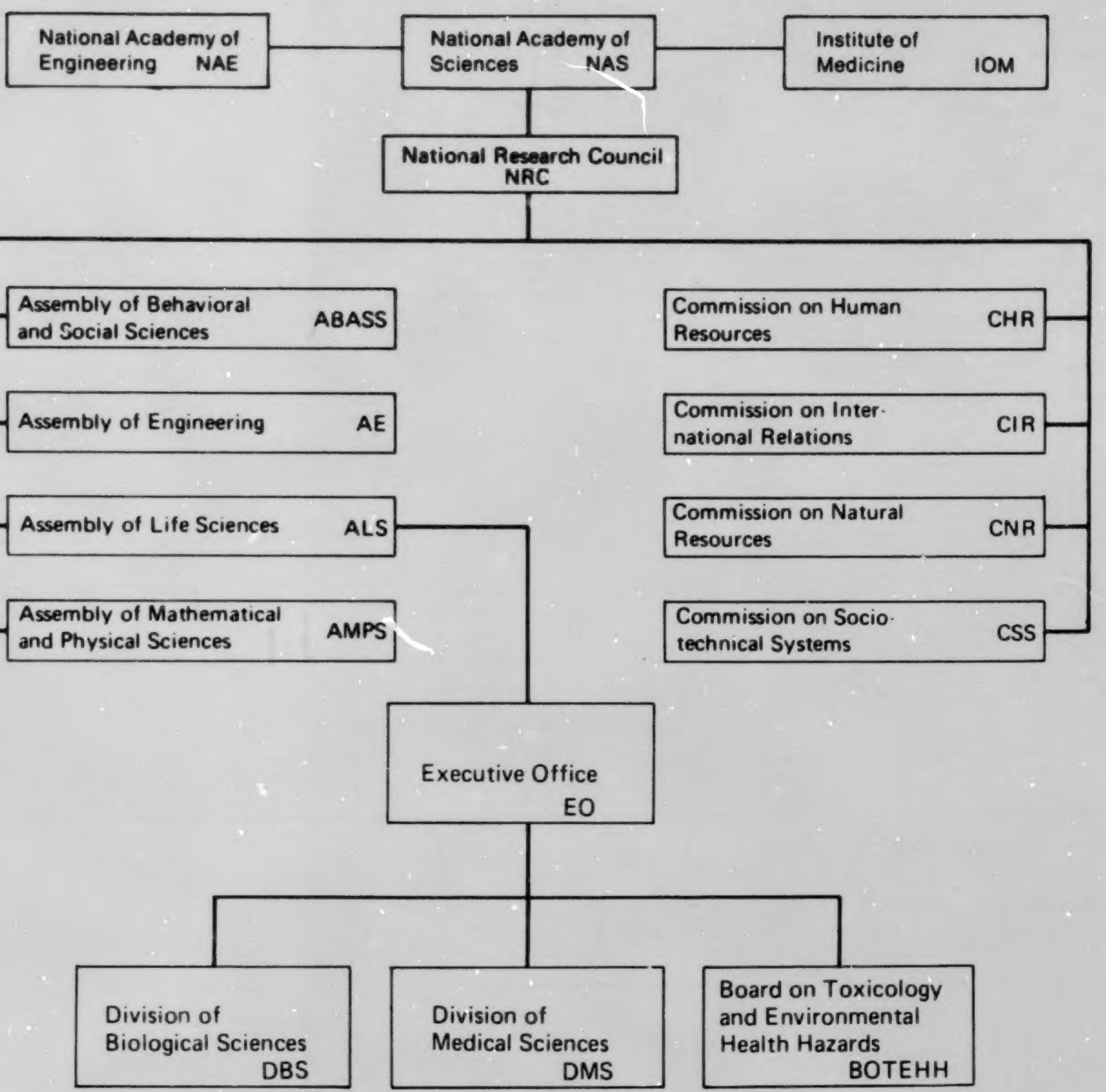
ASSEMBLY OF LIFE SCIENCES


National Academy of Engineering NAE
National Academy of Sciences NAS
Institute of Medicine IOM
National Research Council NRC
Assembly of Behavioral and Social Sciences ABASS
Assembly of Engineering AE
Assembly of Life Sciences ALS
Assembly of Mathematical and Physical Sciences AMPS
Commission on Human Resources CHR
Commission on International Relations CIR
Commission on Natural Resources CNR
Commission on Sociotechnical Systems CSS
Executive Office EO
Division of Biological Sciences DBS
Division of Medical Sciences DMS
Board on Toxicology and Environmental Health Hazards BOTEHH

ASSEMBLY OF LIFE SCIENCES

Summary Description: The Assembly of Life Sciences (ALS) is composed of up to 25 members, generally appointed for 3-yr terms. Five meetings are held each year. Both biologic expertise and medical expertise are represented in the Assembly. The Assembly establishes policy, reviews and recommends acceptance or rejection of each program proposed by its several elements, develops an Annual Program Plan for presentation to the Governing Board of the National Research Council, and is ultimately responsible for the selection of all ALS committee members, for the conduct of committee studies, and for the scientific validity of committee reports.

Membership (with year that term expires):

Frank W. Putnam, Chairman (1980)
Edward H. Ahrens, Jr. (1981)
David Baltimore (1981)
Alexander G. Bearn (1981)
Harry Beevers (1979)
Lloyd M. Beidler (1981)
Floyd E. Bloom (1979)
Myron K. Brakke (1979)
John J. Burns (1981)
Robert H. Burris (1979)
John A. Dowling (1979
Paul E. Ebert (1979)
Howard H. Hiatt (1981)

James G. Hirsch (1980)
Alfred G. Knudson, Jr. (1981)
Gene E. Likens (1980)
Brian MacMahon (1980)
Beatrice Mintz (1981)
Norton Nelson (1981)
Gordon H. Orians (1979)
Charles H. Rammelkamp (1981)
Howard A. Schneiderman (1981)
Donald W. Seldin (1979)

Ex officio
David A. Hamburg (IOM)

Staff:

Councilman Morgan, Executive Director

Alvin G. Lazen, Associate Executive Director

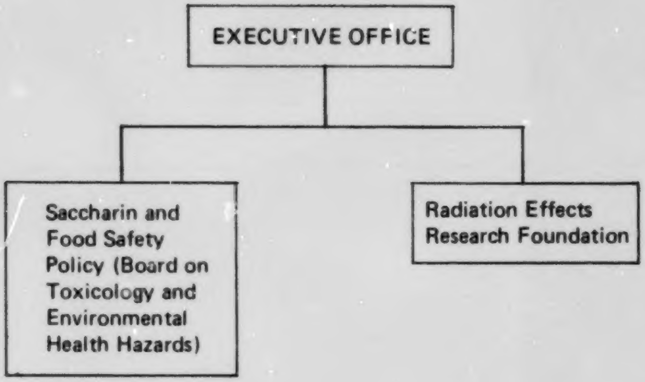
Cecil M. Read, Administrative Associate

Barbara B. Smith, Administrative Secretary

Meetings:

September 11-12, 1978
November 6, 1978
February 26-27, 1979
April 20-21, 1979
June 11-12, 1979

EXECUTIVE OFFICE:
SPECIAL PROGRAMS


EXECUTIVE OFFICE
Saccharin and Food Safety Policy (Board on Toxicology and Environmental Health Hazards)
Radiation Effects Research Foundation

EXECUTIVE OFFICE: SPECIAL PROGRAMS

Although the bulk of the activities of the Assembly of Life Sciences are lodged in either the Division of Biological Sciences, the Division of Medical Sciences, or the Board on Toxicology and Environmental Health Hazards, some programs are directly under the supervision of the Executive Director. Some of these programs involve very large financial support; others deal with subject matter that is primarily neither medical, toxicologic, nor biologic, but bridges two or all three of those disciplines.

ADVISORY COMMITTEE ON THE RADIATION EFFECTS RESEARCH FOUNDATION

Summary Description: The Advisory Committee on the Radiation Effects Research Foundation was established within the Assembly to give program advice and assistance to NAS with respect to the Radiation Effects Resarch Foundation (RERF). RERF was created on April 1, 1975, as the successor to the programs, personnel, and facilities of the Atomic Bomb Casualty Commission (ABCC). ABCC, which was organized in 1947 as a field agency of NAS with funding from the Atomic Energy Commission, had the mission of determining the late effects of radiation from the atomic bombs on the surviving populations of Hiroshima and Nagasaki. The RERF is a private, nonprofit foundation, established under Japanese law. It is funded equally by the two nations: by Japan through a subsidy from the Ministry of Health and Welfare, and by the United States through a subcontract from NAS, with funds received from the Department of Energy (DOE). In addition, relatively small amounts of support have been received through contracts from the National Cancer Institute and the National Heart, Lung, and Blood Institute.

The RERF is governed by a board of directors, half Japanese and half American. The board receives scientific advice on the RERF program from a science council composed of 10 scientists, half of each nationality. The science councillors are formally elected by the board of directors, but the U. S. candidates are nominated by NAS through DOE.

Membership:

Advisory Committee:

James F. Crow, Chairman
Alexander G. Bearn
Michael A. Bender
Eugene P. Cronkite
Bernard G. Greenberg
Brian MacMahon
Robert W. Miller
Robert S. Stone
John B. Storer

Board of Directors:

Masao Tamaki, Chairman
Tomohiko Hayashi
Raisuke Shirabe
Masuo Takabe
Iwao Yasuda

Stuart C. Finch, Vice Chairman
Victor Bond
James L. Liverman
Councilman Morgan
William J. Schull

Science Council:

James F. Crow, Chairman
Alexander G. Bearn
Eugene P. Cronkite
Brian MacMahon
John B. Storer

Ei Matsunaga, Vice Chairman
Soichi Iijima
Harue Katsunuma
Toshiyuki Kumatori
Tsutomu Sugahara

Supervisors:

David Williams

Ken Yanagisawa

Staff:

Seymour Jablon

Meetings:

January 23-24, 1979	(Board of Directors, Hiroshima)
May 19-20, 1979	(Science Council, Hiroshima)
May 23-24, 1979	(Board of Directors, Hiroshima)

Accomplishments: During the year, the Biochemical Genetics Study continued to make good progress; the number of systems being examined was increased to nearly 30 with the acquisition of a centrifugal fast analyzer. New analyses of the older pregnancy-termination data were made in terms of estimated radiation dose, in place of the distance-shielding surrogates for dose used originally. No detectable effects were found.

A new analysis of mortality information was begun, carrying the data through 1978; the number of cancer deaths in high-dose survivors increased sharply during 1975-1978.

The administration continued the process of reducing the size of the support staff--a task necessarily slow in consequence of the Japanese custom of lifetime employment.

The terms of some of the directors and members of the science council expired; the incumbents were re-elected.

Mr. David Williams was elected as Supervisor, Mr. Bernard Kropp's term having expired.

SACCHARIN AND FOOD SAFETY POLICY STUDY

Summary Description: In the spring of 1978, the ALS and the Institute of Medicine (IOM) jointly undertook a study of saccharin and food safety policy, as mandated under the Saccharin Study and Labeling Act of November 1977. The Act postponed the Food and Drug Administration's (FDA) proposed ban on the incorporation of saccharin in foods and beverages and required labels warning of a possible health hazard on saccharin-containing products. Congress asked the Academy to review some aspects of the saccharin controversy and to make recommendations on food safety policy in general.

The Academy study was organized under a coordinating committee with two panels. In November 1978, Panel I, under the aegis of the ALS, reported through the coordinating committee its findings and recommendations regarding the safety of saccharin. Panel I continued to operate in concert with Panel II, administered by the IOM, toward preparation of a second report, completed early in 1979. Although Panel II had primary responsibility for developing recommendations regarding food safety policy for the February report, Panel I contributed material on scientific questions.

Membership:

Coordinating Committee

Frederick C. Robbins, Chairman
Stephen G. Breyer
David L. Call
Thomas Ehrlich
Emmanual Farber
Clifford Grobstein
Richard L. Hall
Alexander Hollaender
George B. Hutchison
Kenneth L. Melmon
Walter A. Rosenblith
Gloria Schaffer

Panel I: Saccharin and Its Impurities and Technical Means for Risk and Benefit Assessment

Emmanuel Farber, Chairman
Fred P. Abramson
Charles C. Brown
James P. Carlos
Frank F. Davidoff
John Doull
Alfred E. Harper
Ian T. T. Higgins
Ronald K. Kalkhoff
Joyce McCann
Willard B. Robinson
Sheldon W. Samuels
Donald F. Steiner
Eliot Stellar

Staff:

Robert G. Tardiff, Project Director
David F. Goldsmith
Alvin G. Lazen
Muriel M. Lippman
Sushma Palmer
Frances M. Peter (Editor)

Meetings:

August 28-30, 1978
October 21-22, 1978

DIVISION OF BIOLOGICAL SCIENCES

DIVISION OF BIOLOGICAL SCIENCES

Committees:
- Aerobiology
- Research Priorities in Tropical Biology
- USNC/International Union of Biological Sciences
- USNC/International Union of Nutritional Sciences
- USNC/International Union for Pure and Applied Biophysics
- USNC/Photobiology

Food and Nutrition Board (FNB)

Committees:
- Clinical Nutrition
- Dietary Allowances
- Food Consumption Patterns
- Food Protection
  - *Subcommittees:*
    - Chemicals Used in Food Processing
    - Codex Specifications
    - Food Microbiology
    - Food Technology
    - Toxicology
- GRAS List Survey, Phase III
- International Nutrition Programs
  - *Subcommittees:*
    - Interactions of Nutrition and Infection
    - Nutrition and Fertility
- Nutrition, Brain Development, and Behavior
- Nutrition of the Mother and Preschool Child
- Sodium-Restricted Diets

Institute of Laboratory Animal Resources (ILAR)

Committees:
- Animal Models and Genetic Stocks
- Animal Models for Research on Aging
  - *Subcommittees:*
    - Carnivores
    - Lagomorphs and Rodents other than Rats and Mice
    - Mice
    - Nonhuman Primates
    - Rats
- Animal Models of Fertility and Contraception
- Conservation of Laboratory Animals
- Genetics
- Histological Classification of Laboratory Animal Tumors
  - *Subcommittee:*
    - Rat Liver Tumors
- Laboratory Animal Data
- Laboratory Animal Facilities and Resources
- Laboratory Animal Records
- Marine Invertebrates
- Nonhuman Primates
  - *Subcommittees:*
    - Care and Use
    - Conservation of Natural Populations
    - Genetics and Breeding Requirements
- Rabbit Genetic Resources

DIVISION OF BIOLOGICAL SCIENCES

The Division of Biological Sciences consists of two clusters of committees--one under the Food and Nutrition Board (FNB) and one under the Institute of Laboratory Animal Resources (ILAR)--and a number of individual committees. Of the latter, four are U.S. National Committees affiliated with international nongovernmental science organizations. The remainder are free-standing groups that are formed to address particular tasks and customarily go out of existence when those tasks are completed.

For any given reporting period, most of what has been accomplished in the Division can be described under the titles of formally established committees. There are a few developing activities that have not yet reached committee status, but that must be described if the report itself is to be complete. A developing activity that is strictly in the province of an existing committee is noted in the writeup of that committee.

DEVELOPING ACTIVITIES

APPLICATIONS OF ECOLOGICAL THEORY TO APPLIED PROBLEMS

As a follow-on to the minisymposium reported in the Annual Report for 1976-1977, Gordon Orians and Gene Likens, both members of the ALS, developed a more definitive statement initially titled "Utility of Different Conceptual Models of Communities and Ecosystems." It was then proposed that a workshop be developed in conjunction with the Environmental Studies Board and the Board on Agriculture and Renewable Resources (of the Commission on Natural Resources). The NAS Program Development Fund has provided $5,000 in support of the venture.

As currently planned, the workshop will attempt to broaden the base of ecological knowledge that is applicable to solution of practical problems by assessing the limit of applicability of systems derived from four viewpoints--ecosystem energetics, nutrient cycling, species richness, and ecosystem stability.

Ten important representative issues in which ecological analysis may be expected to provide some insights have been identified for the workshop:

- Preservation of genetic diversity.

- Design and management of ecological reserves and parks.

- Pest and disease management.

- Improvement of environmental impact statements.

- Significance of human perturbations of biogeochemical cycles.

- Establishment of sound criteria for pollutants and toxicants.

- System management to enhance harvesting of biological materials.

- Resource cycling and waste disposal.

- Consequences of nutrient enrichment of aquatic and terrestrial environments.

- Design of recreational environments.

Sixteen participants have been selected and will be invited for discussions scheduled for September 22-23, 1979. Each is being asked to develop a 30-min statement, keyed to the effective employment of a given ecological approach in addressing one or more of the designated topics.

CRYOBIOLOGY

At the close of the last reporting year, a detailed proposal was completed seeking funds at an estimated $100,000 for a period of about 3 years. Extensive efforts over 8-10 months--including contacts with federal agencies, private foundations, and industry--elicited sufficient favorable response to suggest that the Committee should be funded and in operation by October 1, 1979.

FLUX OF ORGANIC CARBON TO THE OCEANS

Late in the reporting year, after a long period of planning and informal discussion, a proposal was submitted to DOE calling for a workshop on the flux of organic carbon to the oceans. It is likely to be funded and will address the general issue of changes in carbon flux and storage as affected by the transport of particulate and dissolved organic matter by the world's major rivers to the ocean. This term in the global carbon balance is poorly known, and it may well be very substantial. Whatever studies or monitoring schemes are undertaken must include a time during which the rivers are in flood and must take into consideration all size fractions (including trees) quantitatively.

GERMPLASM RESOURCES

The Committee on Germplasm Resources, having completed its summary report, was discharged during the last reporting year. During 1978-1979, relatively little emphasis was given to the subject, although the Division hopes in due course to pursue several more specialized studies. There is an initial indication that the National Institutes of Health would be amenable to providing general funding support.

MICROBIAL PATHOGENS AS BIOLOGICAL CONTROL AGENTS

At the beginning of the reporting year, the outlook for funding of this study by the Environmental Protection Agency seemed dim, despite an earlier expression of interest. In the fall of 1978, however, EPA reasserted its interest and initiated discussions that led to a formal proposal submitted in December. It seems likely that by October 1, 1979, funds of about $110,000 for a 3-yr period will be available.

PLANT DISEASE COMPLEXES OF INTERNATIONAL SIGNIFICANCE

Following the 1968 First International Congress of Plant Pathology, a planning conference/workshop on the ecology and control of bacterial wilt was organized, with the express purpose of "assessing the status of research and considering areas for emphasis in future studies of the disease complex." In an effort to continue along rather similar lines, the Assembly proposed to form a small planning committee and to develop a series of events over the next few years, emphasizing such topics as downy mildew of maize, Septoria blight, leaf rust and yellow dwarf of wheat, soybean rust, the Fusarium wilts, Erwinia soft rots, mycoplasma diseases, and so on.

Plans have now gone well along toward a workshop on maize downy mildew, although in this particular case the Academy will not be directly involved. It is to be held in Bellagio, Italy, with direct support from the Ford Foundation. But interest remains high and will be pursued in later years along the lines summarized above.

SYSTEMATICS RESOURCES IN ENTOMOLOGY

Much of the first part of the year was spent in trying to interest a federal agency, specifically the Department of Defense, in providing modest funding for a 2-yr period during which detailed plans for a trial regional systematics services center could be formulated. The trial itself is envisioned as extending over about 5 yr. Regrettably, the search proved unavailing, and it seems unlikely that other agencies would be more favorably inclined.

Informal discussions with staff of the National Science Foundation have suggested that a different approach would be preferable. Under the plan now being developed, the first step would be a feasibility study that includes an assessment of data compiled by various systematics collections that have received federal support for the last few years. From these data it is hoped that some indication of need for major regional centers can be derived.

WILD HORSES AND BURROS

In response to a request from the Forest Service and Bureau of Land Management, the NRC will prepare a research agenda to elucidate the population dynamics of wild horses and burros and their interrelationship with wildlife, forage, and water resources. This information will be used in determining the disposition of excess animals. The Commission on Natural Resources will act as "lead" agency--the Division is to cooperate on the issue of population dynamics. The parent committee had its first meeting just at the close of the reporting year.

COMMITTEE ON AEROBIOLOGY

Summary Description: The Committee on Aerobiology emerged in response to interests developed during the years of the International Biological Program and has been focused internationally by the formation of an international association and of a commission in the Division of Environmental Biology of the International Union of Biological Sciences. The Committee hopes to bring a measure of coherence to various aspects of research, now loosely defined as "aerobiology," that are related to the movements and interrelationships of biologically significant components of the atmosphere.

Membership:

Robert L. Edmonds, Chairman
Donald Aylor
Sheldon G. Cohen
Bruce F. Eldridge

Russell C. Schnell
Gabor Vali
Jack R. Wallin

Staff:

R. B. Stevens

Meetings:

September 21-22, 1978	(Seattle, WA)
April 5-6, 1979	(Minneapolis, MN)

Accomplishments: During the reporting year, the Committee essentially completed its mailing list of specialists, effected several aerobiology sessions at professional society meetings, and continued its solicitation of views on the issue of forming a national society. Some progress was made toward establishing an aerobiology focus in the American Meteorological Society.

An interim report of Committee activities was prepared and forwarded to the three supporting agencies.

COMMITTEE ON RESEARCH PRIORITIES IN TROPICAL BIOLOGY

Summary Description: The Committee, funded by the National Science Foundation from March 1978, through February 1980, addresses some aspects of research in tropical biology. It will assess research priorities in this field against a background of seemingly rapid conversion of humid tropical forests, indicating the intrinsic importance of special scientific projects and their significance for the survival of man within tropical ecosystems.

The objectives of the Committee are (1) to establish present rates of conversion of tropical moist forest, delimiting proximate and ultimate causes of conversion; to make preliminary projections of future short-term and long-term rates of conversion; and to evaluate prospects for shifts in present patterns of forest conversion; (2) given the rates of conversion, to identify scientific questions that can best be addressed and receive priority in the tropics; (3) given a series of key questions to be investigated, to recommend support of research projects expected to provide some of the answers; (4) to recommend effective ways to fund current international efforts; (5) to evaluate the effectiveness of reports, symposia, conferences, and other activities that would focus worldwide attention on and lead to the development of information concerning these issues.

Membership:

Peter Raven, Chairman
Peter Ashton
Gerardo Budowski
Arturo Gómez-Pompa
Daniel Janzen
William Lewis
Harold Mooney
Paulo Nogueira Neto
Gordon Orians
Harald Sioli
Hilgard O. Sternberg
John Terborgh
Frank Wadsworth
Paul Zinke

Staff:

James J. Talbot

Meetings:

July 19-20, 1978	(St. Louis, MO)
December 9-10, 1978	(Human Ecology Panel)
January 6-8, 1979	(Aquatic Biology Panel, London, England)
January 19-20, 1979	(Physiological Ecology Panel, Palo Alto, CA)
January 27-28, 1979	(Ecosystems Research Panel St. Louis, MO)
May 26-28, 1979	(Xalapa, Veracruz, Mexico)

Accomplishments: A draft report is undergoing its second revision and will be ready for review by a wide body of tropical biologists by September 1979. In general, four broad categories of research priorities are being considered by the Committee. First, there is a general limnological plan involving investigations of major and secondary rivers, lakes, and swamps in the tropics with the intent to establish baseline conditions in these vital water bodies before they are altered to the point where such investigations will be impossible. Second, there will be proposed detailed ecosystem studies at four sites selected in the tropics. The sites will be a lowland moist forest site in Costa Rica on rich soils, one on relatively infertile soils somewhere in the Amazon basin, one in the tropical deciduous forest of northern Latin America, and one somewhere in tropical Asia. Third, there will be recommendations on studies of the ways in which selected aboriginal and peasant populations interact with their environment in the tropics, modify it, and use it on a sustained basis. Fourth, there will be recommendations for increasing the quantity and quality of biological inventories in the tropics.

FOOD AND NUTRITION BOARD

Summary Description: The Food and Nutrition Board (FNB) was formed as a Committee on Foods and Nutrition in what was then the Division of Biology and Agriculture in 1940. It soon became known as the Food and Nutrition Board and has continued by that name. A brief report published in 1965, The Food and Nutrition Board, 1940-1965--Twenty-five Years in Retrospect, summarizes the history of the Board and lists its membership for that period and reports published. The Board issues an annual activities report. Although the Board meets periodically to review the activities of its several committees and to plan for the future, most of the discrete studies are conducted by committees appointed for the specific tasks.

Membership:

*Alfred E. Harper, Chairman
*Roslyn B. Alfin-Slater, Vice Chairman
Charles E. Butterworth, Jr.
Sol H. Chafkin
David B. Coursin
*George K. Davis
R. Gaurth Hansen
Gail G. Harrison
Ogden C. Johnson
Henry Kamin
David Kritchevsky
Robert A. Neal
Robert E. Olson
George M. Owen
*Willard B. Robinson
*Irwin H. Rosenberg

Staff:

Myrtle L. Brown, Executive Secretary

Robert B. Bennett
Durward F. Dodgen
Kenneth R. Fulton
Margaret R. Stewart

Consultants (temporary):

George K. Parman
Anne B. Shaw

Meetings:

September 19-20, 1978
December 7-8, 1978
March 5-6, 1979
June 25-27, 1979 (Boulder, CO)

Accomplishments: The activities of the FNB are reflected primarily in the accounts of its individual committees. However, a study of dietary guidelines research, funded by the National Institute of Arthritis, Metabolism, and Digestive Diseases, was a specific

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*Member of Executive Committee.

project of the Board. The study examined research needs implicit in the report, Dietary Goals for the United States, issued by the U.S. Senate Select Committee on Nutrition and Human Needs. The study was completed in July 1979 and forwarded to the NIH.

A project on specifications for water-treatment chemicals was developed for study by the Board. It has been approved by ALS, and funding is being sought from EPA.

In June 1979, the FNB held its second annual retreat to review its mission and its progress and to make short- and long-term plans for the future. Proposed projects for inclusion in the ALS Annual Program Plan were approved.

COMMITTEE ON CLINICAL NUTRITION

Summary Description: This Committee was established in November 1972. It was given the task of preparing a handbook for the practicing physician to use in diagnosing and treating clinical conditions that are caused by nutritional problems or in which malnutrition plays a contributing or secondary role.

Membership:

Theodore B. Van Itallie, Chairman
Charles E. Butterworth, Jr.
Stanley J. Dudrick
Jules Hirsch
Howard N. Jacobson
Robert M. Kark
William J. McGanity
Harold H. Sandstead
Hamilton Southworth

Staff:

Myrtle L. Brown

Meetings: None

Accomplishments: A final draft of the booklet, Clinical Nutrition: Guidelines for the Physician, has been reviewed by the FNB and the Assembly and required revision on the basis of these reviews. It should be published in the fall of 1979, after which the Committee will be discharged.

COMMITTEE ON DIETARY ALLOWANCES

Summary Description: The Committee, formed in July 1974, is the most recent in a series of committees that have developed eight editions of Recommended Dietary Allowances (RDA), beginning in

1943. RDAs are the intakes of nutrients recommended to provide adequate nutrition for virtually all healthy persons in the United States. They are used in planning programs (such as school-lunch and the Women, Infants, and Children U.S. Department of Agriculture programs), in food labeling, and in other regulatory programs.

Membership:

Hamish N. Munro, Chairman
John G. Bieri
George M. Briggs
C. E. Butterworth, Jr.
Gilbert A. Leveille
Walter Mertz
George M. Owen
Roy M. Pitkin
Howerde E. Sauberlich

Staff:

Myrtle L. Brown

Meetings:

November 27-28, 1978
May 16-17, 1979

Accomplishments: The draft of the ninth edition of Recommended Dietary Allowances has been reviewed by the FNB and ALS. Because of conflicting views over some sections of the report, the Committee met with three representatives of the FNB on July 30, 1979. With the resolution of these problems, it is expected that the report will be published in early fall of 1979.

COMMITTEE ON FOOD CONSUMPTION PATTERNS

Summary Description: The need for a study on changing food consumption patterns was first discussed by the FNB in 1972. After a planning period of several years, the Committee was established in January 1978. The Committee is examining the implications of changing food consumption patterns for nutrient intake and the possible impact on the health of the U.S. population and of special population subgroups. Initially, the Committee is to evaluate the aggregate household and individual methods for collecting food consumption data. The Committee will then evaluate and suggest means by which food consumption data can be integrated with indexes of nutritional status and possibly of health status.

Membership:

Robert O. Nesheim, Chairman
I. J. Abrams
Henry Blackburn
Doris H. Calloway
Helen A. Guthrie
Timothy M. Hammonds
Gail G. Harrison
Harold B. Houser

Staff:

Myrtle L. Brown
Kenneth R. Fulton
Margaret R. Stewart

Meetings:

October 10, 1978	(Chicago, IL)
October 18-19, 1978	(Workshop)
November 8-10, 1978	(Workshop)
March 21-23, 1979	(Workshop, La Jolla, CA)

Accomplishments: The Committee held three workshops--on aggregate food consumption data, on evaluation of methods for obtaining food consumption data, and on nutrition and health status indicators. Background papers were prepared by Committee members and workshop participants. These papers established the state of the art of the various topics and stimulated discussion. The proceedings of the workshops will be used by the Committee as it develops its final report. Work on that report has been initiated.

COMMITTEE ON FOOD PROTECTION

Summary Description: At a meeting of the National Health Assembly in Washington in 1948, a resolution was adopted recommending that the Food and Nutrition Board undertake a study of some aspects of food safety. The FNB appointed an *ad hoc* committee to advise it on actions that should be taken. The Committee on Food Protection was established in 1950 and has been a major activity of the FNB ever since. In its concern with food safety, this Committee has conducted studies on food microbiology, non-nutritive sweeteners, toxicology, food technology, naturally occurring toxicants in foods, radionuclides in foods, specifications of identity and purity of food chemicals, and carcinogenic hazards. Specific tasks are customarily assigned to subcommittees established for that purpose.

Membership:

Paul M. Newberne, Chairman	James R. Kirk
Paul E. Kifer, Vice Chairman	Richard V. Lechowich
Joseph F. Borzelleca	Sheldon D. Murphy
John Doull	Stata Norton
Wendell W. Kilgore	Carl Vanderzant

Staff:

Margaret R. Stewart

Meetings:

October 30-31, 1978
March 19-20, 1979 (Denver, CO)

Accomplishments: The Committee is revising its 1970 publication, Evaluating the Safety of Food Chemicals. Primary responsibility for the revision has been accepted by the members of the Subcommittee on Toxicology. The Committee shared responsibility with the FNB for the Board's Annual Meeting on Perspectives on Food Safety.

The Committee has reorganized its subcommittees. Committee status was proposed for the Subcommittee on Codex Specifications. The current standing subcommittees will be replaced by subcommittees formed as needed for each of the committee projects.

Subcommittee on Chemicals Used in Food Processing

Summary Description: Since 1970, various committees of the Food and Nutrition Board have conducted a number of surveys of the food industry on the use of food additives. In late 1978, the Food and Drug Administration requested that the Committee on Food Protection compile the information from these surveys (the data from which were published previously in several volumes), in a single publication. This represents the fifth edition in a series of publications begun in 1956 concerning the use of food additives. It is anticipated that this report will include summary information on the functional effects, extent of use, foods to which added, estimates of intake, and regulatory references for each of several hundred food additives.

Membership:

Paul E. Kifer, Chairman
Owen R. Fennema
Richard V. Lechowich
Philip E. Nelson
Willard B. Robinson

Staff:

Kenneth R. Fulton

Meeting:

May 9, 1979

Accomplishments: The Subcommittee has developed a tentative format in which to present the data for publication, and plans to convene *ad hoc* working groups of experts on current practices in the food industry to assist it in reviewing the information.

Subcommittee on Codex Specifications

Summary Description: *The Food Chemicals Codex* (*FCC*) is a compendium of quality and purity standards for food additives. The project was initiated in 1961 by the Committee on Food Protection, whose Subcommittee on Codex Specifications now has immediate responsibility for the development and revision of the *FCC*. *FCC I* was published in 1966. The 1,039-page *FCC II*, published in 1972, provides specifications in monograph form for some 650 food additives, with analytical test procedures for determining compliance with the specifications. Current standards are revised, and new ones added, through the issuance of supplements between editions. The FDA, by regulatory action, has recognized the *Codex* specifications as establishing "food grade" quality. The *Codex* has also been adopted by Great Britain, Canada, New Zealand, and Australia. *Codex* standards have been adopted widely by the joint FAO/WHO Expert Committee on Food Additives and by the Food Section of the International Union of Pure and Applied Chemistry. Approximately 8,500 copies of *FCC II* have been printed; current supplies are expected to be exhausted by the time *FCC III* is published in mid-1980.

Membership:

Willard B. Robinson, Chairman
John C. Kirschman, Vice Chairman
Frank L. Boyd
James J. Broderick
Robert S. Bryant
Bruce H. Campbell
J. P. Fletcher
Edward O. Haenni
Hartley Howard
Thomas Medwick
Fred A. Morecombe
Ronald O. Read
Andrew J. Schmitz, Jr.
Gerald E. Stobby
Samuel M. Tuthill

Staff:

Durward F. Dodgen

Meetings:

August 9-10, 1978 (Ottawa, Ontario, Canada)
February 7-9, 1979

Accomplishments: The third supplement to FCC II was published in January. Workshops related to specifications and analytical methods were held in Washington, D.C., on hydrochloric acid (February 1979) and polysorbates (March 1979) and in Rockville, MD, in conjunction with the United States Pharmacopeia, on tocopherols (June 1979). The FCC was cosponsor (with the U.S. Adopted Names Council) of a conference on nonproprietary nomenclature for food, drug, and cosmetic ingredients held at the NAS auditorium in October 1978. The Subcommittee on Codex Specifications has undertaken a general review of all current specifications and analytical methods, as well as the preparation of a number of new specifications, as part of the revision process leading to publication of FCC III in mid-1980.

Subcommittee on Food Microbiology

Summary Description: The Subcommittee, formed in 1965, is concerned with microbiological hazards in foods and their prevention. A core group, composed of microbiologists on the parent Committee, is augmented by additional members when a task is assigned and funded.

Membership:

Carl Vanderzant, Chairman
Richard V. Lechowich

Staff:

Margaret R. Stewart

Meetings: None

Accomplishments: A request for funding for a project on microbiological criteria for foods and food ingredients has been submitted for joint support by FDA, USDA, Department of Defense, and the Department of Commerce National Marine Fisheries Service. If the project is funded, the Subcommittee will be expanded for that project.

Subcommittee on Food Technology

Summary Description: The Subcommittee was formed in 1951. Food-processing industries and food technologists seek ways of enhancing or stabilizing the nutritive value of processed foods, of improving and maintaining sensory appeal of their products, and of adding diversity to the food supply and convenience to the use of their products. Careful testing is necessary to determine the effects of chemical agents on various products or processes. Procedures must be devised for excluding unwanted residues of chemicals used in processing. Informed opinion is essential to prevent premature, unwarranted, or possibly dangerous application of new technologies. The Subcommittee tries to ensure that these criteria are met.

Membership:

James R. Kirk, Chairman

Paul E. Kifer

Staff:

Margaret R. Stewart

Meetings: None

Accomplishments: In the absence of a funded project, a core group of members of the parent committee prepared a position paper on the evaluation of possible hazards from halogenated compounds formed in foods. Approval has been obtained for a study of halogenated compounds and other sanitizers in food-processing, and funding is being sought from FDA. The Subcommittee would then be expanded to undertake the project.

Subcommittee on Toxicology

Summary Description: The Subcommittee was established in 1951 to undertake specific projects relative to toxicological aspects of food protection.

Membership:

John Doull, Chairman
Joseph F. Borzelleca
Sheldon D. Murphy
Paul M. Newberne
Stata Norton

Staff:

Margaret R. Stewart

Meetings: None

Accomplishments: The Subcommittee has undertaken primary responsibility for the revision of the Committee on Food Protection publication, Evaluating the Safety of Food Chemicals. An initial draft of the manuscript was prepared, and review by the Subcommittee was initiated. The Subcommittee met in conjunction with meetings of the Committee on Food Protection.

COMMITTEE ON GRAS LIST SURVEY--PHASE III

Summary Description: This study was initiated in May 1974 in response to a request from the FDA. President Nixon's 1969 consumer message contained a directive concerning the need to reevaluate the safety of substances added to foods that are generally recognized as safe (GRAS). This effort began as a pilot study in 1970 (Phase I) and was advanced in 1971-1972 to a full-scale survey of the food industry on the extent to which the GRAS substances are used in foods (Phase II).

The continuing aims of the project during Phase III are to determine the concentrations at which regulated food and color additives (as opposed to the GRAS substances) are added to foods, the foods to which they are added, and the expected daily intake of each additive.

Membership:

Lloyd J. Filer, Jr., Chairman
Richard L. Hall, Vice Chairman
Owen R. Fennema
Dee M. Graham
Gilbert A. Leveille
Willard B. Robinson
Arthur T. Schramm
Bernard S. Schweigert

Staff:

Kenneth R. Fulton

Meetings:

July 19-21, 1978	(Woods Hole, MA)
October 30-31, 1978	(Chicago, IL)
January 12-13, 1979	(Naples, FL)
February 26-27, 1979	(Workshop)
April 16-17, 1979	(Pacific Grove, CA)
May 14-15, 1979	
June 14-15, 1979	(St. Louis, MO)
June 29, 1979	(Workshop)

Accomplishments: The Committee continued its analysis of the survey data, including a review of the more than 10,000 use-levels reported by respondents. The various subsurveys of some industry segments were concluded during this period. These included data on the use of additives in the chewing-gum, candy, and brewing industries, as well as detailed information on the composition and use of food-color blends and of modified food starches.

The Committee completed the food-category structure to be used in estimating intakes of food additives, using the Market Research Corporation of America's detailed information on food consumption. Also determined during this period were the portion sizes to be allocated to each food product consumed. The Committee sponsored a workshop to determine the relative weights of food products when used as ingredients, rather than being eaten as purchased.

The Committee began analyzing the response rate for the survey in terms of the industry segments included in the various Standard Industrial Classification (SIC) codes developed by the Office of Management and Budget. The use of these figures and other possible approaches to estimating the survey's coverage will be explored further by the Committee.

During this period, the 1978 Enzyme Surveys were mailed to and returned by manufacturers and users of enzymes for food application. Data from these surveys will be processed, analyzed, and reported to the FDA.

In addition to its work on the 1977 Food and Color Additives Survey (Phase III) and the 1978 Enzyme Surveys, the Committee is responsible for maintaining and reviewing the accuracy of the data collected during Phase II. Data on a number of these substances have been corrected after being reviewed with the respondents at the request of the FDA and the Federation of American Societies for Experimental Biology (FASEB).

The Committee submitted reports to the FDA during the year on use-levels reported by industry for some substances listed in the Federal Register and on the annual poundage of food additives reported in Phase III. Reports in preparation include data on GRAS substances reported in Phase III and the summary of survey data and estimates of intake for each food additive reported.

COMMITTEE ON INTERNATIONAL NUTRITION PROGRAMS

Summary Description: The Committee on International Nutrition Programs (CINP) has the general charge of considering overseas problems and activities in nutrition and providing scientific and technical advice as appropriate. Since May 1, 1970, the Committee has undertaken a special role advisory to the Agency for International Development. Among other things, the Committee identifies nutritional problems in less-developed countries that might well be addressed, outlines programs for preventing or lessening malnutriton in less-developed countries, reviews research and program proposals related to overseas nutrition projects, and develops position statements as appropriate. The Committee may convene workshops or conferences or appoint ad hoc panels or task forces in furtherance of these functions. In addition, there are two standing subcommittees, whose activities are described below.

In the light of discussions with the staff of the Office of Nutrition, AID, the Committee has agreed on a number of issues on which the Office of Nutrition wishes scientific evaluation and advice. These are related to current or contemplated AID programs in various overseas missions and take several forms, provided for in the supporting contract--brief position papers, commentaries on documents and reports prepared by other groups, and small workshops. Several such topics are under consideration, mostly by panels or task forces formed from among the members of the Committee. They are in various stages of development and will be carried along during fiscal 1980. In no particular order of priority, the issues now being addressed are as follows.

- Rapid assessment of dietary intakes--Simplified dietary-survey methods have been prepared, field-tested, and revised and are being reviewed for submission to the Committee by the Task Force on Nutrition Surveillance.

- Breastfeeding and family planning--The statement has been approved by the Committee and the NAS Report Review Committee and transmitted to AID. The panel has been discharged.

- Management of diarrheal disease--The work of this panel has been turned over to the Subcommittee on Interactions of Nutrition and Infection. The final paper on management of diarrheal disease from the practical viewpoint of the village or community is expected for Committee review in November 1979. The panel will then be discharged.

- Functional definition of nutritional status--The July 1977 workshop proceedings have been forwarded to AID with recommendations for needed research in this field.

- Amino acid fortification of cereals--The task force has approximately 90% of this work completed and anticipates transmitting its report to AID in December 1979. The task force will then be discharged.

- Nutrition surveillance--A task force on this topic was formed at the November 1978 meeting of the Committee. It has been asked to review the adequacy of surveillance methods being used in developing countries and to define the conditions most appropriate for the different methods. It has been asked to hold a workshop in 1980 to assess the state of the art and to write a report for AID with recommendations for actions by AID. The makeup of this task force and its responsibilities have caused the Committee to recommend to FNB that a subcommittee on nutrition surveillance be appointed to replace the task force.

- Nutritional component of a primary health-care system--A task force chaired by Abraham Horwitz was appointed to review this subject and to identify essential nutrition interventions, provide scientific evidence on successful experiences, look into the introduction of nutrition objectives into current or new primary health-care systems, provide guidance on the training of community health workers, and prepare a report with recommendations to the CINP to transmit to AID. On completion of its report, the task force will be discharged.

- Maternal nutrition and infant feeding in developing countries--A task force was formed at the April 1979 meeting of the Committee. Ten persons have been asked to assist in this effort. Four of them are from developing countries. The mission of the task force is to evaluate the scientific base on specific topics in maternal and infant nutrition. After the evaluation, appropriate recommendations will be made to the parent Committee for transmission to AID. The task force has been asked to coordinate its activities with the Consultative Group on Maternal and Young Child Nutrition established by the Advisory Group on Nutrition as part of its assistance to the U.N.-ACC Subcommittee on Nutrition. On completion of its report, the task force will be discharged.

- Evaluation of nutrition intervention--A task force on this topic was appointed at the November 1978 meeting of the Committee. It was assigned the mission of advising AID on project evaluation and reviewing a critique of evaluation methodologies. The chairman of the task force has been asked to talk further with AID as to the issues to be examined. On completion of its assignment, the task force will be discharged.

Membership:

Jean-Pierre Habicht, Chairman
Gretchen G. Berggren
George K. Davis
James S. Dinning
George M. Foster
George G. Graham
Abraham Horwitz
Gerald T. Keusch
John Michael Lane
James A. Olson
Harold H. Sandstead
Erik Thorbecke
Barbara A. Underwood
Joe D. Wray

Staff:

Robert B. Bennett
Frances M. Peter (Editor)

Meetings:

November 1-2, 1978	
March 2, 1979	(Nutrition Surveillance)
March 23-24, 1979	(Nutrition Component of a Primary Health Care System)
April 19-20, 1979	
June 22, 1979	(Management of Diarrheal Diseases, New York, NY)

Accomplishments: A number of task forces were established to concentrate Committee and outside expertise on subjects designated by AID as needing committee advice and guidance. Several reports were transmitted to AID, and others are nearing completion.

Subcommittee on Interactions of Nutrition and Infection

Summary Description: The Subcommittee was established in 1971 to give special attention to the implications of the interactions between nutrition and infection and to keep the CINP informed on these issues.

Membership:

Gerald T. Keusch, *Chairman*
Michael C. Latham
Louis H. Miller
Irwin H. Rosenberg
Noel W. Solomons
Kenneth S. Warren

Staff:

Robert B. Bennett

Meetings:

December 8, 1978 (New York, NY)

Accomplishments: The Subcommittee assumed responsibility for the work of the Panel on Management of Diarrheal Disease. It also commenced planning a workshop on interaction of parasitic infection and nutriton and seeking funds for it.

Subcommittee on Nutrition and Fertility

Summary Description: The Subcommittee was established in 1971 to give special attention to the relationship of nutrition and fertility and to keep the CINP informed on the subject.

Membership:

Joe D. Wray, *Chairman*
James S. Dinning
Jean-Pierre Habicht
Jeanne Clare Ridley
John B. Stanbury

Staff:

Robert B. Bennett

Meetings: None

Accomplishments: The Subcommittee was discharged on June 30, 1979. A new one is to be appointed.

COMMITTEE ON NUTRITION, BRAIN DEVELOPMENT, AND BEHAVIOR

Summary Description: Formerly a subcommittee of the Committee on International Nutrition Programs, this unit became a committee in 1974. Its special purpose is to foster the scientific enterprise in this complex field.

Membership:

David B. Coursin, Chairman
Josef Brozek
Joaquin Cravioto
Robert Klein
Merrill S. Read
Henry N. Ricciuti
Mark R. Rosenzweig
Myron Winick
Richard J. Wurtman

Staff:

Myrtle L. Brown

Meetings: None

Accomplishments: Proceedings of an International Conference on Behavioral Effects of Energy and Protein Deficits, held in Washington, November 30-December 2, 1977, are in final preparation and will be published by DHEW in early 1980. The Conference was cosponsored by the Committee and the U.S.-Japan Cooperative Medical Science Program.

A proposal for a conference on critical issues in research on malnutrition and behavior has been approved by the FNB and will be presented in the ALS Annual Program Plan.

COMMITTEE ON NUTRITION OF THE MOTHER AND PRESCHOOL CHILD

Summary Description: The Committee, formed in August 1974, resulted from restructuring and expanding of an earlier Committee on Maternal Nutrition. The Committee serves as an advisory resource for the Bureau of Community Health Services, DHEW;

thus, its activities are directed toward improvement of nutritional aspects of maternity care and of the nutrition of infants and preschool children.

Membership:

Roy M. Pitkin, Chairman
Virginia A. Beal
John L. Duhring
Frank Falkner
George R. Kerr
Janet C. King
Alvin M. Mauer
W. Ann Reynolds
William N. Spellacy

Staff:

Myrtle L. Brown

Meetings:

July 28, 1978	(Panel on Neonatal Requirements, Memphis, TN)
October 2, 1978	(Panel on Maternal-Fetal Requirements, Atlanta, GA)
October 3, 1978	
February 22, 1979	(Irving, TX)
June 15, 1979	

Accomplishments: The Committee has continued work on a project, Nutrition Services in Perinatal Care, supported by the Bureau of Community Health Services and the National Foundation-March of Dimes. Two sections of the report are near completion--on nutrient needs of normal and high-risk mothers and on nutrient needs of normal and high-risk infants. In preparation are the two final sections--on personnel and facilities required for delivery of nutritonal care at each of the three levels of maternal and perinatal care and on research needs. It is anticipated that the report will be available for review by the end of the year.

The proposal, "Weight Gain Grids in Pregnancy," approved in the 1978 Annual Program Plan, has not yet been funded by the Center for Disease Control, owing to delays in negotiating a contract with NAS as sole source. It is expected that this contract will be awarded and that the project will be well under way during the coming fiscal year.

Funds for the project, "Nutritional Abuses in Pregnancy," also approved in the 1978 Annual Program Plan, are being sought.

COMMITTEE ON SODIUM-RESTRICTED DIETS

Summary Description: The Committee was organized in 1972 specifically to update and review the 1954 NAS publication, Sodium-Restricted Diets. The report will include basic information on physiological disposition of sodium, conditions in which sodium restriction and diuretics are used therapeutically, and practical aspects of planning sodium-restricted diets with or without concomitant diuretic therapy. It will also contain current information on the sodium content of processed foods, primarily on the basis of information provided through the Industry Liaison Panel of the FNB.

Membership:

George M. Owen, Chairman
Harold A. Kaminetzky
Herbert G. Langford
Harold H. Sandstead
Susan S. Schiffman

Staff:

Myrtle L. Brown
Frances M. Peter (Editor)

Meetings: None

Accomplishments: The report of the Committee was published in spring, 1979, after which the Committee was discharged.

INSTITUTE OF LABORATORY ANIMAL RESOURCES

Summary Description: The Institute of Laboratory Animal Resources (ILAR) was formed in 1952 as an element of the then Division of Biology and Agriculture. It serves as a coordinating agency and a national and international resource for compilation and dissemination of information, promotion of education, planning and conduct of conferences, surveys of existing and required resources, and generally the upgrading of laboratory animal resources in the United States and abroad. The Institute has been a focal point for information on laboratory animals and a key advisory group in laboratory animal science. An important element in the ILAR effort to serve these functions is the Institute's quarterly journal, ILAR NEWS.

The ILAR programs are planned and reviewed by a Chairman and Council. Within the Council, there is an Executive Committee charged with more detailed supervisory responsibility. The Executive Committee meets about three times a year, the Council once. In addition to active study committees, ILAR conducts a program of conferences, symposia, and workshops and supports a substantial staff activity.

Membership:

Council

*Nicholas G. Bottiglieri, Chairman
*W. Jean Dodds, Vice Chairman
John W. Adams
*Nancy J. Alexander
James W. Atz
Kurt Benirschke
Emerson L. Besch
Philip B. Carter
Bruce H. Ewald
Kenneth C. Hayes
*Hyram Kitchen
*J. Russell Lindsey
Patrick J. Manning
*Edward C. Melby, Jr.
*Donald F. Patterson
Allan M. Schrier
Richard O. Spertzel
Walter Erich Stumpf
*Robert A. Whitney, Jr.

Staff:

Earl W. Grogan, Executive Secretary
Samuel Abramson
Andrea L. Cohen
Dorothy D. Greenhouse
Nancy A. Muckenhirn

Meetings:

November 30, 1978	(Executive Committee)
April 18-19, 1979	(Council)
May 15, 1979	(Executive Committee)

Accomplishments: The ILAR Executive Committee met two times during FY 1979, the Council once. At these meetings, the budgetary requirements and ILAR committee activities were discussed. Other matters reviewed included the status of ILAR publications, sponsorship of symposia and workshops, current and pending legislation affecting laboratory animal resources, nominations to ILAR committees for FY 1980, development or revision of guideline documents, and status of ILAR information services.

In the Council meeting, three workshops were held--on educational programs for scientists in laboratory animal experimentation, on pain and stress in laboratory animals, and on the use of laboratory animals by secondary-school students and science-club members.

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*Member of Executive Committee.

ILAR provides--through conferences, symposia, and workshops--a forum for the discussion of important laboratory animal problems. Past conferences and workshops dealt with animal standardization and accreditation, primate resources, procurement of animals from natural populations, inbred-mouse production and cell culture, research-animal housing, gnotobiotic technology, infections of laboratory animals potentially hazardous to man, animal-technician training, graduate education in laboratory animal medicine, and molluscan pathology.

The Northeast Research Center for Wildlife Diseases, the Registry of Comparative Pathology of the Armed Forces Institute of Pathology (AFIP), and ILAR cosponsored a Symposium on Pathobiological Effects on Environmental Pollutants: Animal Models and Wildlife as Monitors on June 1-3, 1977. Topics focused on the potential usefulness of wildlife species as animal models in monitoring environmental pollutants and as comparative models or alternatives to traditional laboratory animal species. Data from both laboratory and field studies have shown that crude oil and its related compounds may cause not only acute, often fatal lesions, but also latent and chronic diseases. Several papers treated various effects of pesticide toxicity and heavy-metal poisoning. The proceedings, to be entitled Animals as Monitors of Environmental Pollutants, are in press and will be published by the NAS in 1979.

The ILAR offices serve as an information center on various aspects of laboratory animal science and answer numerous inquiries on laboratory animal topics. During FY 1979, approximately 23,000 copies of ILAR reports were distributed.

An important element in the ILAR effort to serve as a coordinating and focal response for development and distribution of guidelines and information pertaining to laboratory animals and their care and use is the Institute's quarterly journal, ILAR NEWS, prepared by the staff. This publication has been issued regularly since October 1957 and currently is distributed without charge to large numbers of investigators and institutions throughout the United States and in 57 foreign countries. In recent years, its mailing list has included several thousand addresses.

ILAR NEWS frequently includes reports by ILAR committees on various aspects of laboratory animal science. Its typical content includes news (including programs) concerning future and past local, national, and international meetings of interest to its readers; various types of announcements; general news; NAS-NRC news and reports; references on animal models for biomedical research arranged by anatomic systems and disease categories; book reviews; technical notes; articles of interest, notices of availability of special animals, organs, and tissues; requests for special animal models; proposed and established federal regulations; lists of reference material available (for sale by NRC, as well as free of charge from ILAR); requests for information; new books available; and miscellaneous information of interest to a variety of persons and organizations involved with laboratory animals.

Staff members assisted foreign visitors, made occasional site visists on request, addressed groups interested in the laboratory animal field, and cooperated with other organizations to improve laboratory animal facilities and care.

An important part of staff effort goes into the Animal Models and Genetic Stocks Information Exchange Program. Since this Program's inception 9 yr ago, the ILAR staff, with assistance from the Committee on Animal Models and Genetic Stocks, has established a broad data base on animal models and genetic stocks; it continues to collect information on the location of unique animal colonies and on the availability of animals from those colonies. In the last 9 yr, the staff has received and responded to thousands of inquiries from scientists in the United States and abroad. The following types of information are available in response to requests:

- Key references and lists of major characteristics describing various animal models or genetic stocks.

- Names and addresses of sources of supply or location of investigator colonies of genetically characterized animal stocks, strains, and mutant lines, including uncommonly used animals.

- Names and addresses of scientific experts on animal model topics and on maintenance of laboratory species.

The data are made available without charge to interested parties through publication in ILAR NEWS and by direct response to specific inquiries.

Staff and committee members have contributed to the Information Exchange Program by sharing information gained through their professional activities and their attendance at, and participation in, scientific meetings. An exhibit entitled "Animal Models of Human Disease," cosponsored by ILAR and the Registry of Comparative Pathology of the Armed Forces Institute of Pathology (AFIP), was displayed and monitored by the staff during 1978 at the Federation of American Societies for Experimental Biology meeting in April, the annual meeting of the American Veterinary Medical Association in July, the annual meeting of the American Assocation for Laboratory Animal Science in September and the Association of Military Surgeons of the United States meeting in November.

During the last year, ILAR staff members have obtained information through questionnaires for the tenth edition of Animals for Research--A Directory of Sources. Approximately 180 companies will be included in this listing, an increase of about 40% over the number listed in the 1975 edition. The new edition of Animals for Research, to be published in 1979, will include information not published in previous editions, such as availability of animals with surgical modifications.

COMMITTEE ON ANIMAL MODELS AND GENETIC STOCKS

Summary Description: The establishment of the Committee in July 1969 was stimulated by a resolution adopted by the Genetics Society of America and encouragement from the National Institutes of Health. Its purpose is to collect, maintain, and disseminate information on suppliers and biomedical uses of animal models and genetic stocks.

Membership:

William H. Stone, Chairman
Robert S. Anderson
Robert W. Bull
Linda K. Collins Cork
Thomas J. Gill, III
George A. Padgett
Peter K. T. Pang
Donald C. Shreffler

Staff:

Nancy A. Muckenhirn

Meeting:

November 13, 1978

Accomplishments: The Committee continued to advise ILAR staff in locating sources of animal models and genetic stocks, identifying needed animal models, and revising locator files so that this information would be available to scientists seeking a particular species or genetically characterized stock. These tasks were accomplished through staff work to collect, store, and disseminate such data as key references and major characteristics pertaining to a given animal model or genetic stock and names and addresses of supply sources, animal colonies, and scientific consultants knowledgeable on animal model topics. Information was made available to interested scientists in ILAR NEWS and by direct response to specific inquiries. Committee members and staff attended and participated in meetings and symposia of other groups investigating topics related to animal models and genetic stocks and identified timely subjects for symposia and workshops on various animal model topics.

The Committee has planned a joint meeting with the Registry of Comparative Pathology of AFIP on August 17, 1979, to exchange information on activities and to discuss progress on joint projects, including the exhibit and symposia.

COMMITTEE ON ANIMAL MODELS FOR RESEARCH ON AGING

Summary Description: This Committee was established on September 30, 1977, in response to a request from the National Institute on Aging, to assemble and review data on the relevance and appropriateness of selected small vertebrates as animal models for research on aging. A steering committee and five subcommittees were formed to conduct the study.

Membership:

Bennett Cohen, Chairman
Richard C. Adelman
Douglas M. Bowden
Carel F. Hollander
Leah M. Lowenstein
Takashi Makinodan
Roger McClellan
Henryk M. Wisniewski

Subcommittee on Carnivores:

Roger McClellan, Chairman
Henry J. Baker
Robert W. Bull
Charles C. Capen
Harold W. Casey
Webster S. S. Lee
Joe L. Mauderly
Robert Lee Pyle

Subcommittee on Lagomorphs and Rodents other than Rats and Mice:

Carel F. Hollander, Chairman
Jode D. Burek
Richard R. Fox
Alan L. Kraus
George A. Sacher
Albert L. Vincent

Subcommittee on Mice:

Takashi Makinodan, Chairman
Harold H. Draper
James F. Florini
David Harrison
Howard J. Hoffman
J. Michael Holland
C. K. Hsu
Louis J. Serrano
Richard L. Sprott

Subcommittee on Nonhuman Primates:

Douglas M. Bowden, Chairman
Irwin S. Bernstein
Thomas B. Clarkson
Donna Cohen
Andrew G. Hendrickx
Robert W. Prichard
Peter S. Rodman
William H. Stone
Henryk M. Wisniewski

Subcommittee on Rats:

Richard C. Adelman, Chairman
Miriam R. Anver
Merrill F. Elias
Philip W. Landfield
Edward J. Masoro
Joseph Meites
Jay Roberts

Staff:

Dorothy D. Greenhouse

Meetings:

July 6, 1978	(Subcommittee on Carnivores)
July 10, 1978	(Subcommittee on Rats)
July 13-14, 1978	(Subcommittee on Nonhuman Primates)
July 21, 1978	(Subcommittee on Mice)
October 13-14, 1978	(Subcommittee on Rats)
October 15, 1978	
October 16, 1978	(Subcommittee on Lagomorphs and Rodents other than Rats and Mice)
November 2-4, 1978	(Subcommittee on Nonhuman Primates)
November 28-29, 1978	(Subcommittee on Mice)
December 4-5, 1978	(Subcommittee on Carnivores)
February 5-6, 1979	(Subcommittee on Rats)
March 11-12, 1979	(Subcommittee on Nonhuman Primates)
March 21, 1979	(Subcommittee on Carnivores)

Meetings continued:

March 23-24, 1979	(Subcommittee on Mice)
March 26, 1979	(Subcommittee on Lagomorphs and Rodents other than Rats and Mice)
April 19-20, 1979	
May 6-7, 1979	(Workshop on Comparative Models for Problems of the Human Aged)
May 17-18, 1979	(Workshop on Comparative Models for Problems of the Human Aged)

Accomplishments: A scope of the work and format for the report was developed. Each subcommittee has selected and addressed key issues in gerontological research; discussed the advantages and limitations of various stocks, strains, or breeds as animal models of these issues; compared and contrasted each species with other species as animal models; and recommended ways to use each species to maximize availability and minimize cost. The subcommittee reports were drafted and submitted to the Committee in July 1979. In addition, two Workshops on Comparative Models for Problems of the Human Aged were held. Subcommittee members and invited participants considered selected diseases that present problems for the human aged. Reports on these workshops were also submitted to the Committee in July 1979. The Committee expects to complete its work by December 1979.

COMMITTEE ON ANIMAL MODELS OF FERTILITY AND CONTRACEPTION

Summary Description: Following recommendations of a 1977 task force, a contract proposal was negotiated with the Program for Applied Research in Fertility Regulation (PARFR) of Northwestern University to fund a symposium. The symposium was held on May 8-10, 1978, and was the first NAS symposium to integrate poster sessions with formally presented papers. The program emphasized comparative studies, with descriptions of species peculiarities that make them especially suitable for particular studies.

Membership:

Nancy J. Alexander, Chairman
Don Wayne Fawcett
Michael J. Free
Gilbert S. Greenwald
Edward Mather
Dolores J. Patanelli
Sheldon J. Segal

Staff:

Nancy A. Muckenhirn

Meetings: None

Accomplishments: An organizing meeting was held on September 9, 1977, and the symposium was held on May 9-10, 1978. Fifty participants discussed a variety of topics during the 2.5-day program that included both speakers and poster sessions. Session chairmen discussed edited manuscripts with individual authors at the meeting. Advance submission and editing of manuscripts allowed the proceedings to be compiled directly after the meeting and submitted for review. The final report was submitted to PARFR, the funding organization, and the proceedings are expected to be published by Harper and Row, Inc., in 1979.

COMMITTEE ON CONSERVATION OF LABORATORY ANIMALS

Summary Description: As one outcome of the Symposium on the Future of Animals, Cells, Models, and Systems, the ILAR Executive Committee determined that it would be advisable to establish a small, continuing committee charged with remaining alert to present and emerging alternatives to the use of animals in biomedical research and to ways in which animals might be used conservatively. This move responds to increasing shortages of animals of some types and to other issues raised at the symposium. At least once a year, the Committee will report to the ILAR Executive Committee on the current state of these matters and propose special studies or related activities as appropriate.

Membership:

George T. Harrell, Jr., Chairman
Carol M. Newton
F. Barbara Orlans
Herbert S. Rosenkranz

Staff:

Earl W. Grogan

Meeting:

November 8, 1978

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Accomplishments: Numerous publications relevant to conservation of laboratory animals were referred by the staff to the Committee during the year, to maintain awareness of developments in the field, as well as attitudes of the scientific community, various organizations, and the public on these issues. At its meeting, the Committee discussed a variety of issues, ranging from the use of laboratory animals in secondary-school science programs to their use and conservation in biomedical research.

COMMITTEE ON GENETICS

Summary Description: Established September 1, 1974, this Committee is revising the 1969 publication, A Guide to Genetic Standards for Laboratory Animals.

Membership:

Herman B. Chase, Chairman	Larry E. Mobraaten
E. John Ainsworth	Willys K. Silvers

Staff:

Nancy A. Muckenhirn

Meetings: None

Accomplishments: The Committee will emphasize the importance of the specific characterization of experimental animals and discuss mating systems of inbred, outbred, and mutant strains that have been used increasingly during the last 5 yr. The draft report, Laboratory Animal Management: Genetics, has been reviewed, and the work is under way to respond to constructive comments by the reviewers. The report is expected to be published in late 1979.

COMMITTEE ON HISTOLOGIC CLASSIFICATION OF LABORATORY ANIMAL TUMORS

Summary Description: Established September 1, 1975, this Committee is charged with the development and promotion of worldwide standardization of histologic tumor classification in laboratory animals comparable with that now available for human neoplasms.

The frequency and nature of tumors in body sites differ markedly among species, breeds, and regions. The histologic terminology applied to these pathological lesions is used loosely. In much of the literature, it is not clear whether

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investigators in different laboratories are observing the same tumors or whether uniform nomenclature is being used to describe similar tumors in different species.

Membership:

Robert A. Squire, Co-chairman	Edwin D. Murphy
Harold L. Stewart, Co-chairman	Svend W. Nielsen
Harold A. Casey	Mearl F. Stanton

Staff:

Samuel Abramson

Meetings: None

Accomplishments: At its initial meeting, in September 1976, the Committee discussed the priority of needs in relation to its charge and recommended that rat liver tumors should be studied first through appointment of a subcommittee. At its February 1978 meeting, the Committee reviewed and approved the draft document prepared by the Subcommittee on Rat Liver Tumors, after making a series of suggestions for improvement of the manuscript for consideration by the author group. It also recommended continuation of efforts to develop a series of companion publications that would deal with tumors of appropriate organs or systems in selected laboratory animals. To this end, the Committee identified lung tumors of mice and bladder tumors of rats as topics that warrant early attention through appointment of subcommittees of experts on these subjects. Topics identified for later attention include mammary and skin tumors of mice and mammary tumors of rats.

Subcommittee on Rat Liver Tumors

Summary Description: The Subcommittee was established in December 1976 on the recommendation of the Committee on Histologic Classification of Laboratory Animal Tumors. The Subcommittee was charged to formulate a tentative histologic classification and nomenclature of tumors and associated lesions that occur in the rat liver.

Membership:

Harold L. Stewart, Co-chairman	Louise S. Lombard
Gary M. Williams, Co-chairman	Richard J. Montali
C. Hans Keysser	

Staff:

Samuel Abramson

Meetings: None

Accomplishments: The Subcommittee developed a report, Histologic Typing of Liver Tumors in the Rat, that includes benign and malignant tumors, associated lesions, and related phenomena, with pertinent references. The material covered in the report is illustrated by color photographs of histologic sections. The report was reviewed and approved by a peer group of pathologists, who applied the classification to microscopic slides of rat liver tumors in their personal collections. The document was submitted for publication in the Journal of the National Cancer Institute.

COMMITTEE ON LABORATORY ANIMAL DATA

Summary Description: Established June 1, 1976, this Committee provides scientific advice to the National Library of Medicine Laboratory Animal Data Bank, which is being developed under contract with Battelle Memorial Institute in Columbus, Ohio. The Committee is charged with conducting an annual program evaluation dealing with computer systems as used in the program, biostatistics, and storage and retrieval of on-line information in pathology, genetics, natural incidence of disease, neoplasms, longevity, experimental protocols, and husbandry techniques.

Membership:

Donald A. B. Lindberg, Chairman
Norman H. Altman
Edwin J. Andrews
James G. Fox
Robert O. Jacoby
Richard T. Johnson
Thomas H. Roderick

Staff:

Earl W. Grogan

Meetings: None

Accomplishments: The annual meeting of the Committee is scheduled to be held August 30-31, 1979.

COMMITTEE ON LABORATORY ANIMAL FACILITIES AND RESOURCES

Summary Description: This Committee was formed in April 1977 to organize and conduct a national survey of laboratory animal facilities and resources supporting biomedical research and bioscience teaching. To the extent practicable, the questionnaire used in an earlier survey (1968) was the basis of an updated instrument for the current project.

Membership:

C. Max Lang, Chairman
John G. Adams
Emerson L. Besch
Richard R. Fox
Robert R. Jorgensen
William A. Knapp, Jr.
James R. Pick, Jr.
Stefano Vivona

Staff:

Samuel Abramson

Meetings: None

Accomplishments: The Committee has developed a final survey instrument, in the form of a comprehensive questionnaire, for use in the conduct of a national survey designed to gather objective data on the current status of laboratory animal facilities and resources, on unfilled needs, and on the projection of future needs. The questionnaire was pretested at nine institutions representing a cross-section of the institutions to be surveyed throughout the United States. The responses of these pretest institutions and suggestions from a dozen government and private agencies and institutions that examined the draft questionnaire were used to develop the final document. The U.S. Office of Management and Budget officially approved the questionnaire, and a comprehensive up-to-date mailing list was developed to ensure an "entire universe" sample for the national inventory of laboratory animal facilities and resources. The questionnaire was distributed nationwide, and data provided by respondents have been entered in a computer. Various data-processing procedures are being used to ensure accuracy and internal consistency and appropriateness of the data. A variety of tables are being constructed to display the information for analysis and preparation of a report. It is anticipated that the survey will be completed and a final report prepared for publication in 1979.

COMMITTEE ON LABORATORY ANIMAL RECORDS

Summary Description: This Committee was formed in April 1977 to develop a standarized animal record system for nonhuman primate breeding colonies. The Committee met during 1977 and 1978 to develop a record system with sample forms and to evaluate responses from field tests at institutions with both computerized and manual record systems.

Membership:

Arthur S. Hall, Chairman
Norman H. Altman
Charles H. Frith
Roy V. Henrickson
Noel D. M. Lehner
Walter F. Loeb
Howard Moraff
Wendell C. Peacock
Gene P. Sackett
U. S. Seal

Staff:

Nancy A. Muckenhirn
Frances M. Peter (Editor)

Meetings:

July 20-21, 1978
October 26-27, 1978

Accomplishments: The report of the Committee was published in 1979 and sent to the supporting contractor, Division of Research Resources, NIH.

COMMITTEE ON MARINE INVERTEBRATES

Summary Description: The Committee was established in 1976 in response to a recommendation of a task force that met on January 28, 1976. The Committee met four times over a period of 3 yr to prepare a manual on laboratory management of marine invertebrates. The maintenance of artificial seawater systems and specific guidelines for management of frequently used species are being emphasized in the document.

Membership:

Ralph Hinegardner, Chairman
James W. Atz
Rimmon C. Fay
Milton Fingerman
Robert K. Josephson
Norman A. Meinkoth
John W. Miller, Jr.
Mary Esther Rice

Staff:

Nancy A. Muckenhirn

Meeting:

September 8, 1978

Accomplishments: Marine invertebrates make up one of the larger and most diverse groups of organisms. The manual is the most extensive taxonomic project ever undertaken by an ILAR committee. Because of the diversity of organisms and their specialized needs, the Committee produced the report in two parts. The first part contains general guidelines for laboratory care, and the second part includes individually written chapters on maintenance of species groups. The report is anticipated to be completed during 1979 and published in 1980.

COMMITTEE ON NONHUMAN PRIMATES

Summary Description: This Committee was organized in March 1970, as the Committee on Conservation of Nonhuman Primates, in response to requests from the National Institutes of Health and the U.S. Department of Defense for an examination of the effects of habitat change on wild populations and the needs for breeding programs to ensure the continued availability of nonhuman primates for biomedical programs. The Committee reviews data on scientific use and breeding and management programs.

Membership:

Allan M. Schrier, Chairman
Carolyn M. Crockett
John F. Eisenberg
Edward I. Goldsmith
William J. Goodwin
Kenneth C. Hayes
Noel D. M. Lehner
Patrick J. Manning
James H. Vickers

Subcommittee on Care and Use:

Patrick J. Manning, Chairman
Francis C. Cadigan, Jr.
Edward J. Goldsmith
Kenneth C. Hayes
Bernard F. Trum
James H. Vickers
Robert A. Whitney, Jr.

Subcommittee on Conservation of Natural Populations:

John F. Eisenberg, Chairman
Carolyn M. Crockett
Theodore H. Fleming
Thelma E. Rowell
Richard W. Thorington, Jr.

Subcommittee on Genetics and Breeding:

Noel D. M. Lehner, Chairman
Herman B. Chase

Subcommittee on Requirements:

William J. Goodwin, Chairman
Carolyn M. Crockett

Staff:

Nancy A. Muckenhirn

Meetings: None

Accomplishments: The Committee prepared a letter of comments on the National Primate Plan developed by the Interagency Primate Steering Committee (IPSC) of NIH during a public response period. The Subcommittee on Care and Use is updating the 1973 publication, Standards and Guidelines for the Breeding, Care, and Management of Laboratory Animals: Nonhuman Primates. The revised document is expected to be published during 1980. In 1977, the Subcommittee on Conservation of Natural Populations prepared a plan for developing a manual of information and guidelines for wildlife personnel to use in conducting surveys of mammalian populations in the tropics. Discussions were undertaken with program staff of the IPSC during 1978 to develop a contract for preparation of the manual. Activities of the Subcommittees on Genetics and Breeding and on Requirements were not developed during the year independently of the parent Committee. It was agreed to establish subcommittees in the future only when specific activities are to be undertaken.

COMMITTEE ON RABBIT GENETIC RESOURCES

Summary Description: This Committee was established to conduct a scientific review and evaluation of rabbit resources and germplasm at the Jackson Laboratory. This nonprofit institution is considering the reorganization of an internationally renowned rabbit resource program in relation to possible future plans for construction of a new building to house this group of animals.

The Committee's report is expected to aid the Laboratory in deciding on which strains and stocks to retain in reproductive activity and which ones to commit to a program of retention in the form of frozen embryos or sperm. These decisions will be based on the value of the animals to the biomedical research community and on perceived needs for their use as animal models in the study of human disease.

Membership:

Park S. Gerald, Chairman	Steven H. Weisbroth
Thomas J. Gill, III	James E. Womack

Staff:

Earl W. Grogan	Andrea L. Cohen

Meeting:

June 18-19, 1979

Accomplishments: At its first meeting, on June 18-19, 1979, the Committee developed an approach and plan for conducting the evaluation. Views and opinions of others identified as particularly knowledgeable and experienced in the use of rabbits in sophisticated biomedical research will be solicited. The Committee report is expected to be completed and submitted to the funding organization (Jackson Laboratory) by February 1980.

U.S. NATIONAL COMMITTEES

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF BIOLOGICAL SCIENCES (USNC/IUBS)

Summary Description: The Committee was organized in the early 1920s in the interests of U.S. participation in nongovernment biological activities and to ensure effective U.S. involvement in IUBS programs. It advises the NAS on matters pertaining to IUBS, nominates delegates to IUBS General Assemblies, provides information and guidance for delegates to the General Assemblies and other international activities of significance to the biological sciences, and performs other duties generally expected from national committees of adhering countries under IUBS statutes. It is composed of 15 members, about half of whom represent the botanical and half the zoological sciences.

Membership:

Rita Colwell, Chairman	Jerry Hirsch
Walter J. Bock, Vice Chairman	John A. Moore
Peter Raven, Secretary	Oliver E. Nelson, Jr.
Harlan P. Banks	Otto T. Solbrig
Robert H. Burris	Peter H. von Hippel
Vincent G. Dethier	
Philipp Gerhardt	Ex officio
Frank B. Golley	Edward S. Ayensu
Aubrey Gorbman	

Staff:

Samuel B. McKee

Meetings:

December 4, 1978
March 5, 1979

Accomplishments: The scientific activities of the IUBS were reviewed. Interdisciplinary symposia sponsored by IUBS were found to be useful. The USNC/IUBS was unconvinced of the need for a proposed Inter-Union Commission of Application of Science to Agriculture, Forestry, and Aquaculture, because those who were to benefit from the organization seemed to have adequate access to the results of basic science. The Union's proposed effort to reverse the decline of herbaria in tropical countries was endorsed by the Committee.

Becoming aware of complaints concerning the lack of visas for some scientists to attend the International Congress of Genetics held in Moscow, the Committee sent a questionnaire to several scientists involved in planning or attending the Congress. After reviewing the responses, the Committee asked the XX General Assembly of IUBS to discuss the requirements of hosts to issue visas to attend IUBS-sponsored meetings.

Also in preparation for the XX General Assembly, the Committee suggested a discussion of the structure of the IUBS and proposed an amendment to the statutes codifying a procedure for obtaining nominations for officers and council members from member organizations of IUBS.

The Division of Microbiology of IUBS is based on the International Association of Microbiology Societies (IAMS). The IAMS is the only autonomous international organization on which an IUBS division is based. For some years, IAMS has considered the possibility of withdrawing from IUBS and establishing an independent existence and seeking Union membership with the International Council of Scientific Unions (ICSU). The USNC/IUBS endorsed the effort of IAMS to withdraw from IUBS and seek Union membership in ICSU.

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF NUTRITIONAL SCIENCES (USNC/IUNS)

Summary Description: The Committee was established in 1957 as a focal point for interaction between the U.S. scientific community and the International Union of Nutritional Sciences. It performs functions typical of USNCs in advising the NAS on matters related to U.S. participation in IUNS, nominating delegates to international meetings sponsored by IUNS, and directing attention to nutrition research that requires international cooperation. Its nine members are nominated by the American Institute of Nutrition and the American Society of Clinical Nutrition.

Membership:

George K. Davis, Chairman
Roslyn B. Alfin-Slater, Vice Chairman
Edwin T. Mertz, Secretary
George G. Graham
Helen A. Guthrie
Alfred E. Harper
Kenneth E. Harshbarger
James A. Olson
Ruth L. Pike

Ex officio
Max Milner
Nevin S. Scrimshaw

Staff:

Samuel B. McKee

Meeting:

April 2, 1979

(Jointly with the
Organizing Committee
for the XII International
Nutrition Congress,
Dallas, TX)

Accomplishments: After his nomination by the Committee, the General Assembly of IUNS elected Nevin Scrimshaw President of IUNS for a 3-yr term ending in 1981. In addition, several nominess proposed by the USNC were elected to membership on the Council. The General Assembly also accepted a suggestion of the Committee that host countries of International Nutrition Congresses be designated two Congresses in advance, so that organizing committees have adequate time to raise funds and plan the scientific program.

The NAS on behalf of the American Institute of Nutrition and the American Society of Clinical Nutrition, extended and received formal acceptance of an invitation to host the XII International Nutrition Congress, in San Diego, California, on August 16-21, 1981.

The USNC assisted the Congress Organizing Committee by suggesting topics and chairmen for symposia and proposing topics for sessions of contributed papers. The USNC also reviewed logistical arrangements, including facilities for simultaneous translations.

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION FOR PURE AND APPLIED BIOPHYSICS (USNC/IUPAB)

Summary Description: The Committee was organized in 1962 to serve as a focal point for interaction between the U.S. scientific community and the International Union for Pure and Applied Biophysics. It performs functions typical of USNCs and maintains close contact with a number of scientific societies, particularly the Biophysical Society. Three of its eight members are nominated by the Biophysical Society, and three are nominated by other professional societies; two are members-at-large.

Membership:

Andrew G. Szent-Gyorgyi, Chairman
Michael Beer, Vice Chairman
Warren L. Butler
Helen Eberle
George Eisenman
Josef Eisinger
Richard Podolsky
Berton C. Pressman

Ex officio
Britton Chance
Lee D. Peachey
Frederic M. Richards

Staff:

Samuel B. McKee

Meeting:

May 1, 1979

Accomplishments: The Committee reviewed the VI International Biophysics Congress, held in Kyoto, Japan, on September 3-9, 1978. The scientific and logistical arrangements were excellent. Large numbers of young Japanese scientists were present and even organized their own program. The USNC recommended that this innovation be continued in future Congresses. In another innovation for biophysics Congresses, satellite symposia were held in which subjects were discussed in depth, whereas the Congress covered biophysics rather broadly. It was not obvious that future organizers could mount both a Congress and satellite symposia.

The Committee supported the continued use of poster sessions for contributed papers, but thought that adequate time must be scheduled so that they could be viewed properly.

Planning was reviewed for the VII International Biophysics Congress, to be held in Mexico City, Mexico, on August 23-29, 1981. Recognizing that administrative problems made it unlikely that the NAS could mount a travel-grant program for the VII Congress, the Committee asked the Biophysical Society to mount a travel-grant program if the NAS could not.

U.S. NATIONAL COMMITTEE FOR PHOTOBIOLOGY (USNC/PHOTOBIOLOGY)

Summary Description: A Committee on Photobiology was formed in the early 1950s to promote photobiology as a scientific discipline and to serve as a focus of interaction with the Comité International de Photobiologie (CIP), a commission of the International Union of Biological Sciences. CIP, renamed the Association Internationale de Photobiologie (AIP) in 1976, has sponsored a long series of international photobiology congresses at 4-yr intervals. In 1972, the Committee on Photobiology was reformed as a USNC for Photobiology after having taken a leading role in the establishment of the American Society for Photobiology, which is concerned primarily with photobiology as a science. It performs the usual functions of a USNC by providing liaison between U.S. scientists and international activities in this field. It is composed of 12 members, nominated by the Committee and a number of professional biological societies.

Membership:

John Jagger, Chairman
Roderick Clayton
Josef Eisinger
John H. Epstein
R. J. M. Fry
Leonard I. Grossweiner
Andre T. Jagendorf
Lois M. Hamerman Johnson
John W. Lee
David Stuart Nachtwey
Joseph W. Sausville
Myron Lee Wolbarsht

Ex officio
Frederick Urbach

Staff:

Samuel B. McKee

Meeting:

April 26, 1979

Accomplishments: At the request of the USNC, A. Forziatti and E. DeFabo described the complex arrangements by which federal research on stratospheric ozone has been supported through a program known as the Biological and Climatic Effects Research Program.

The USNC recommended that Lars Bjorn, Secretary of the AIP, be nominated for election to the Council of the International Union of Biological Sciences. This suggestion was acted on by the USNC/IUBS.

As has been customary, the USNC recommended that the NAS organize a travel-grant program for the VIII International Photobiology Congress, to be held in Strasbourg, France, on July 20-25, 1980. The American Society for Photobiology was asked to assist in stimulating participation by advertising the Congress in its journals. The NAS has administrative problems caused by the standard overhead charged to travel grants; some funding agencies restrict or prohibit overhead charged to such grants. Because this controversy was unresolved, the USNC asked the Society to organize the travel-grant program.

DIVISION OF MEDICAL SCIENCES

DIVISION OF MEDICAL SCIENCES

- Maternal, Child, and Family Health Research, Board on (BMCFHR)
- Medical Follow-Up Agency (MFUA)
  - *Committee:*
    - Epidemiology and Veterans' Follow-Up Studies
      - *Subcommittees:*
        - Exposure at Tests of Nuclear Weapons
        - Twins
- *Committees:*
  - Contraceptive Technology
  - Effects of Multiple Immunizations
  - Emergency Medical Services
    - Ad Hoc Committee to Revise the Red Cross Manual "Advanced First Aid"
  - Health Effects of Fossil Fuel Combustion Products
  - Human Health Effects of Subtherapeutic Antibiotic Use in Animal Feed
  - Laboratory-Associated Biological Risks
- *Committees:*
  - Biological Effects of Ionizing Radiations
    - *Subcommittees:*
      - Genetic Effects
      - Somatic Effects
  - Biological Effects of Non-Ionizing Electromagnetic Radiation
  - DOE Research on Health Effects of Ionizing Radiation
  - Extent of Radiation from the Pave Paws Radar
- *Committees:*
  - Military Environmental Research
    - *Subcommittees:*
      - Land Renovation
      - Occupational Health
      - Water Reuse
  - USANC/International Brain Research Organization
  - USANC/International Council of Societies of Pathology
  - USANC/International Union Against Cancer
  - USANC/International Union of Physiological Sciences
  - Veterinary Medical Sciences

DIVISION OF MEDICAL SCIENCES

DEVELOPING ACTIVITIES

The Division of Medical Sciences (DMS) activities that have been under active study are discussed under the titles of the committees noted below. A number of important programs are being developed that deserve special attention, even in their early formative stages. These are described briefly here.

- A study of the research program in human oncogenesis sponsored by the National Cancer Institute is designed to determine priorities on the types of research that can be expected to yield data leading to scientific bases for preventive intervention. The study will examine selected proposed risk factors and undertake a multivariant analysis of risks to define the relationship among individual risk factors. For proposed risks for which the supporting evidence is weak or is lacking, fields of research that are most likely and least likely to provide supporting data will be indicated. The program is anticipated to begin in the fall of 1979.

- In 1978, the president of the NAS asked the Division of Medical Sciences to develop a general statement concerning the NAS interests in research for amelioration of chronic disability. A comprehensive view of this issue was prepared and released to various interested agencies, including the Veterans' Administration, the Health Care Financing Administration, and the National Science Foundation. Discussions on undertaking parts of this proposal are under way.

- A study of the biologic effects of nonionizing radiation (microwaves) has been developed and will be launched in 1979.

- Discussions with the secretariat of the World Health Organization have led to consideration of plans whereby the NRC may provide scientific guidance to the WHO on chronic disease, including research, prevention, and health programs.

- The recognition that the United States will be subject to ever-increasing restrictions on current sources of energy and the need for rapid development of alternative fuels has brought to the fore the question of the health risks of the production of synthetic fuels. A long-term program to assess the risks of manufacture of and public exposure to "synfuel" products has been developed. The identification of data that are necessary for accurate estimation of human health risk and that can be accumulated during experimental and industrial pilot-plant operations is a critical portion of the planned study.

- With the explosion of biologic information regarding the nature of brain function, it is appropriate that the bridge between neurobiology and mental health be critically examined. In preparation for such a study, a group of neurobiologists and psychiatrists will be convened to define the issues that are amenable to analysis.

- Information storage, retrieval, and analysis techniques have provided a unique resource for the study of human health and disease. A study of the most productive means of using and applying these resources in clinical research is under development.

- Techniques are now available to address the identification of populations that are genetically at high risk of succumbing to a wide variety of diseases. A study of the methods and applications of genetic characterization of high-risk populations is being prepared.

In addition to the programs that have been approved by the Governing Board, others are in the discussion and development stage and will be presented to the Assembly for its evaluation and approval in the near future.

COMMITTEE ON THE BIOLOGICAL EFFECTS OF IONIZING RADIATIONS

Summary Description: The Committee on the Biological Effects of Ionizing Radiations (BEIR) is a lineal descendant of the Advisory Committee to the Federal Radiation Council established in 1964.

The Committee's 1972 report on radiation risks (genetic and somatic) provided much of the information on radiation health risks and much of the basis for further calculation or risks in various units (mortality, death rates, life expectancy, disease incidence, morbidity, ill health, and functional disability).

The Committee's report of 1977 dealt with the analysis of health benefits, versus costs, in terms of the needs, problems, and methodologic approaches of the times and the concepts, ethical considerations, and regulations covering radiation of a medical nature and from power sources. The report illustrated the application of methods, but did not attempt a definitive analysis--nor did it reassess the risk from radiation exposure.

In the fall of 1976 and winter of 1976-1977, the Committee was realigned to meet a new charge: to review bioeffects information that has become available since the 1972 report was published--considering particularly the question of dose rate and radiocarcinogenesis--and to revise such 1972 risk estimates as may be indicated, particularly with respect to genetic and somatic effects.

Membership:

Edward P. Radford, Chairman
Seymour Abrahamson
Gilbert W. Beebe
Michael A. Bender
A. Bertrand Brill
Reynold F. Brown
Stephen F. Cleary
Cyril L. Comar (deceased)
Carter Denniston
Jacob I. Fabrikant
Marylou Ingram
Charles E. Land
Charles W. Mays
Dade W. Moeller
Dean R. Parker
Harald H. Rossi
Liane B. Russell
William L. Russell
Paul B. Selby
Margaret H. Sloan
Edward W. Webster
Henry N. Wellman

Subcommittee on Genetic Effects:

Dean R. Parker, Chairman
Seymour Abrahamson
Michael A. Bender
Carter Denniston
Liane B. Russell
William L. Russell
Paul B. Selby

Subcommittee on Somatic Effects:

Edward P. Radford, Chairman
Gilbert W. Beebe
A. Bertrand Brill
Reynold F. Brown
Stephen F. Cleary
Cyril L. Comar (deceased)
Jacob I. Fabrikant
Marylou Ingram
Charles E. Land
Charles W. Mays
Dade W. Moeller
Harald H. Rossi
Liane B. Russell
Margaret H. Sloan
Edward W. Webster
Henry N. Wellman

Staff:

Albert W. Hilberg
Norman Grossblatt (Editor)

Meetings:

July 6-8, 1978	(Writing group)
July 20-21, 1978	
August 24-25, 1978	(Subcommittee on Somatic Effects)
September 21-22, 1978	(Subcommittee on Somatic Effects, Crystal Mall, VA)
November 1-3, 1978	(Sterling, VA)
December 15, 1978	
February 19-21, 1979	(Writing group)
June 2-4, 1979	(Writing group)
June 23-25, 1979	(Writing group)

Accomplishments: The Committee considered its task and appointed two subcommittees, on genetic effects and somatic effects. These prepared basic documents for consideration and incorporation into a final report of the Committee. It is anticipated that the Committee's final report will be completed in 1979.

COMMITTEE ON THE BIOLOGICAL EFFECTS OF NONIONIZING ELECTROMAGNETIC RADIATION

Summary Description: The Committee was established in December 1978 to perform two functions: review the report of the Panel on the Extent of Radiation from the PAVE PAWS Radar System (a cooperative study described later) and plan a study of the effects of nonionizing radiation.

Membership:

Richard B. Setlow, Chairman
Ernest N. Albert
Donald I. McRee
William J. Thaler

Staff:

Alvin G. Lazen

Meeting:

March 25, 1979

Accomplishments: The Committee reviewed the PAVE PAWS report on behalf of the Assembly. It provided advice on the development of a contract proposal to perform a critical assessment of the biologic effects of nonionizing radiation. The proposal is pending action by the Interagency Regulatory Liaison Group.

COMMITTEE ON CONTRACEPTIVE TECHNOLOGY

Summary Description: The Committee was established in August 1977, after NAS President Handler expressed his concern that, although present contraceptive techniques are imperfect and in some cultures are not acceptable, the pharmaceutical industry seems to be content with a limited armamentarium and is no longer pursuing new technology. The Committee was asked to arrange a symposium to provide up-to-date information on the effectiveness of current contraceptive techniques, on the need for new techniques, and on basic and applied research that might lead to progress. The symposium was held in May 1978. Future interests of the Committee include development of an ALS program in male contraception, ethical considerations in research on contraceptive technology, and the psychosocial aspects of contraceptive technology.

Membership:

Elwood V. Jensen, Chairman
Sheldon J. Segal, Co-Chairman
Linda E. Atkinson
Philip A. Corfman
Don W. Fawcett
Roy Hertz
Luigi Mastroianni, Jr.
Warren B. Miller

Staff:

Enriqueta C. Bond
Frances M. Peter (Editor)

Meeting:

February 16, 1979

Accomplishments: The proceedings of the symposium held in May 1978 were reviewed, updated, and edited. The proceedings have been submitted for publication, and a publication date of October 1979 has been set.

COMMITTEE ON DOE RESEARCH ON HEALTH EFFECTS OF IONIZING RADIATION

Summary Description: The Committee was established in response to a request from the Deputy Assistant Secretary for the Environment of the Department of Energy (DOE) to the president of NAS. The Academy was asked to review and evaluate "the total program of the DOE related to the effects of low levels of ionizing radiations in man." The Committee's charge included not only the evaluation of the scope and quality of DOE research, but also the assessment of scientific management practices and their impact on research.

The report will be used by the DOE in its planning for its research program on health effects and mortality from exposure to low-dose ionizing radiation. The short time frame of the study reflects DOE's urgent need for this information.

Membership:

Russell H. Morgan, Chairman
John J. Crowley
Murray Eden
Edward R. Epp
Patrick J. Fitzgerald
Harry K. Genant
George T. Harrell, Jr.
Leon O. Jacobson
John S. Laughlin
Cyrus Levinthal
Robert Q. Marston
Robert D. Moseley, Jr.
Robert D. Phemister
Raymond Seltser
H. Eldon Sutton

Liaison Member
Walter W. H. Weyzen

Staff:

Eliahu J. Salmon
Norman Grossblatt (Editor)

Meetings:

January 4, 1979
February 26, 1979
March 12-13, 1979
April 8-10, 1979

Accomplishments: Basic questions concerning the quality and scope of the DOE research were defined. All the principal investigators of the relevant DOE studies were asked to prepare detailed project evaluation reports. A series of "reverse site visits" were undertaken, during which DOE directors of programs and associate directors of some national laboratories reviewed their research programs. It is anticipated that the first draft of the Committee's report will be completed by September 1979. A final report is expected by the end of 1979.

COMMITTEE ON EMERGENCY MEDICAL SERVICES

Summary Description: The Committee, formed in 1968 as a successor to the NRC Committees on Trauma and Shock, has been supported by categorical and core grants from the Department of Transportation, the Department of Health, Education, and Welfare, the American National Red Cross, and the Robert Wood Johnson Foundation. It has drawn national attention to problems of emergency medical care and has developed guidelines for emergency services. Specific activities and task forces have also provided advice regarding the training of ambulance personnel and emergency medical technicians, ambulance design and standardization, the regionalization of emergency medical services (EMS) systems, emergency airway management, and the broader issue of cardiopulmonary resuscitation and emergency cardiac care.

Membership:

Donald S. Gann, *Chairman*
Rebecca A. Anwar
Richard S. Crampton
Alan R. Dimick
William R. Drucker
Charles F. Frey
William F. Hamilton
Martin D. Keller
Eugene L. Nagel
Donald G. Penterman
Edmund Ricci
Leslie Rudolf
Blair Sadler
Marla E. White
Tamarath Yolles

Liaison Members

David R. Boyd
Lawrence R. Rose

Subcommittee for Emergency Department Staffing:

Charles F. Frey, *Chairman*
Rebecca A. Anwar
William R. Drucker
Edmund Ricci
Marla E. White

Subcommittee for Medical Control:

Blair Sadler, *Chairman*
Alan R. Dimick
Martin D. Keller
Eugene L. Nagel
Donald G. Penterman
Lawrence R. Rose

Ad Hoc Committee to Revise the Red Cross Manual "Advanced First Aid":

George T. Anast, *Chairman*
Richard Aguilar
Claude Atkins
Harry E. Davis
Archer S. Gordon
Carol S. Kramer
Phillip A. Snodgrass
John G. Suelzer

Staff:

Daniel L. Weiss
David A. McConnaughey
Norman Grossblatt (Editor)

Meetings:

September 18, 1978
December 14, 1978
January 29, 1979
March 5, 1979
April 23, 1979
June 4-5, 1979
June 22, 1979 (Subcommittee for Emergency Department Staffing)

Accomplishments: The Committee has published a report, EMS at Midpassage, and has to date distributed about 3,000 copies. This report, in effect an update of the landmark 1968 NAS report, Accidental Death and Disability: The Neglected Disease of Modern Society, reviews the state of EMS. It discusses conceptual problems of system design and management, quality assessment and assurance, and regionalization and categorization, as well as the practical problems associated with EMS system financing, transportation, communication, and training; and it makes recommendations concerning the directions that EMS should take in the future.

The Committee, through two subcommittees, is now preparing reports on medical control of paramedic activity by emergency-care physicians and on emergency-department staffing. Medical control is required in federally sponsored paramedic EMS systems and is required by law in many states. However, the nature and degree of control required under various circumstances have not been determined. In recent years, the proliferation of EMS systems and a concurrent increase in public demand for medical services have subjected emergency departments to a variety of pressures from EMS systems, the public, lawmakers, and health-care providers. The Subcommittee on Emergency Department Staffing will examine such pressures and delineate alternatives, in terms of emergency-department staffing and management patterns, for meeting these pressures.

COMMITTEE ON RESEARCH NEEDS ON THE HEALTH EFFECTS OF FOSSIL-FUEL COMBUSTION PRODUCTS

Summary Description: This project had its origin in a Workshop on Health Effects of Fossil-Fuel Combustion Products, held in November 1974 under the sponsorship of the Cornell Energy Project and the Electric Power Research Institute (EPRI). As a result of the workshop, the ALS was asked to undertake a more definitive study of the same subject.

Data concerning the health effects of the products of fossil-fuel combustion are inadequate for the purposes of energy planning and regulation. This project entails a critical assessment of existing data to identify those which are valid, to determine what critical information is lacking, and to recommend a research program through which needed information may be obtained. The Committee will not address itself to regulatory decisions concerning exposures, but will be limited to the scientific aspects of the information base on which such decisions may be made. Emphasis will be placed on the combustion products of stationary sources of power. A number of critical reviews have been undertaken recently on the effects of pollutants, several under the auspices of the NAS. Wherever practicable, existing reviews are used for the identification of subjects on which research is needed.

The Committee is composed of experts in biochemistry, biology, biostatistics, clinical medicine, epidemiology, meteorology, toxicology, and air and water pollution engineering. It is supplemented by panels of experts as required.

A final report is anticipated by December 1979.

Membership:

Frank W. Putnam, Acting Chairman
Mary O. Amdur
Irwin M. Arias
Robert E. Carroll
Paul K. Glasoe
Bernard D. Goldstein
Leonard D. Hamilton
Ian T. T. Higgins
Paul E. Morrow
Jay A. Nadel
Peter C. Nowell
Harold B. Tukey, Jr.
Geoffrey S. Watson

Staff:

Albert W. Hilberg
Norman Grossblatt (Editor)

Meeting:

January 8, 1979

Accomplishments: An interim report of the Committee indicating the direction of considerations to be used for the final report was completed and submitted to the contractors on May 9, 1978. A final-report draft is now under consideration.

COMMITTEE TO STUDY THE HUMAN HEALTH EFFECTS OF SUBTHERAPEUTIC ANTIBIOTIC USE IN ANIMAL FEEDS

Summary Description: The Committee was formed in July 1979 to respond to a congressional mandate that the Food and Drug Administration (FDA) withhold any restriction on the use of penicillin and tetracycline in animal feeds until the NAS had studied the epidemiologic evidence of the public-health significance of the subtherapeutic use of penicillin and tetracycline in animal feeds. The Committee will review existing literature, published and unpublished, that reports epidemiologic studies that have been conducted or are being conducted; recommend studies; and identify mechanisms for conducting such studies. The Committee will use a number of consultants to help to define the issues and prepare critical reviews of subjects that affect the central issue. The study is being carried out in cooperation with the Board on Agriculture and Renewable Resources of the Commission on Natural Resources.

Membership:

Reuel A. Stallones, Chairman
Edward R. Alexander
Charles E. Antle
Pierce Gardner
Edward H. Kass
Carl A. Keller
J. Michael Lane
Frank J. Massey, Jr.
Robert H. Rownd
Paul R. Sheehe
Vernon L. Tharp

Consultants:

Franklin Atkinson
Robert N. Goodman
George Jacoby
Stanley E. Katz
Jackson S. Kiser
K. Brooks Low
Thomas F. O'Brien
William E. Pace
Dwayne C. Savage
John F. Timoney
John P. Utz

Advisory Panel:

David P. Anderson
Ernest L. Biberstein
James L. Bittle
Joseph P. Fontenot
William Hale
Leo L. Jensen
George C. Poppensiek
Vaughn C. Speer
Clarence M. Stowe
Howard S. Teague

Staff:

Enriqueta C. Bond
Philip Ross (for Advisory Panel)
Roy Widdus
Frances M. Peter (Editor)

Meetings: None

Accomplishments: A public meeting to obtain new data or proposals for epidemiologic studies is planned for August 1979. The major work of the Committee is expected to be accomplished at a September workshop.

COMMITTEE ON LABORATORY-ASSOCIATED BIOLOGICAL RISKS

Summary Description: The Committee was convened to respond to the issue of research using recombinant DNA technology and other laboratory-associated biologic risks. An ad hoc risk-benefit panel examined the issue by studying the information available in the fall of 1977 and issued an assessment document that was the basis of NAS testimony before cognizant committees of Congress. The Committee reviewed the original assessment document in March 1978 and developed a revised document that included data that had appeared in the interim. It plans to continue the updating of the data and conclusions.

In the late spring of 1978, the Committee reviewed a draft of an outline document prepared by the American Society of Microbiologists (ASM) concerning the education and training of workers in recombinant DNA laboratories and commented extensively on the requirements for such instruction. The Committee commented on the proposed HEW revised guidelines for recombinant DNA research and has continued to remain in place to respond to any issues.

Membership:

Maclyn McCarty, Chairman
Paul Berg*
Herman N. Eisen
Charlotte Friend
Clifford Grobstein*
Rollin D. Hotchkiss
Arthur Kelman
Cyrus Levinthal
Charles H. Rammelkamp

Staff:

Enriqueta C. Bond

Meeting:

October 2, 1978

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*Paul Berg resigned on December 4, 1978, and Clifford Grobstein resigned on March 14, 1979.

Accomplishments: The Committee's active projects included the document by the *ad hoc* risk-benefit panel, which assessed recombinant DNA and other laboratory-associated biologic risks; review and revision of the risk-benefit document; review of the ASM draft report, *To Develop Minimum Knowledge for Training of Participants in Recombinant DNA Research*; and review and comment on the HEW revised recombinant DNA guidelines.

The Committee is developing a prospective set of problems in the field of biologic risk elements in the laboratory for future study.

The expenditures of the Committee for 1978-1979 have been underwritten by the NAS. Efforts to obtain nongovernment foundation funding are proceeding.

BOARD ON MATERNAL, CHILD, AND FAMILY HEALTH RESEARCH

Summary Description: The Board on Maternal, Child, and Family Health Research (BMCFHR) was established in 1974 to perform the following functions:

- Identify the health needs of young persons (infants, children, and adolescents).

- Review research reports and national health statistics, in order to help to identify maternal, child, and family health needs, and suggest priorities for improving maternal, child, and family health.

- Survey private and public policies and practices that influence maternal, child, and family health care and research, and provide a forum for discussion and study of change.

- Help to direct public and private resources toward a coherent national effort on behalf of maternal, child, and family health.

Membership:

Richard E. Behrman, *Chairman*
Henry L. Barnett
Jerome S. Harris
Edward F. Lis
Ruth Watson Lubic
Margaret E. Mahoney
Luigi Mastroianni, Jr.
Robert W. Miller
Jacqueline A. Noonan
Paul G. Quie
Frederick C. Robbins
Irving Schulman
Albert J. Solnit
Myron E. Wegman
Doris L. Wethers

Staff:

Enriqueta C. Bond

Meetings:

November 29-30, 1978
May 21-22, 1979

Accomplishments: A list of programs proposed by the Board follows. Funding continues to be sought to carry out these programmatic goals.

- A study of the needs for the improvement of children's health statistics, emphasizing morbidity data on acute and chronic illnesses in infants.

- A study of the placental role in fetal exposure to damaging agents that are responsible for fetal loss, teratogenesis, and oncogenesis.

- A study of the biologic and medical effects of teen-age pregnancy on both the child and the mother. This program is closely coordinated with parallel studies by the Institute of Medicine and the Assembly of Behavioral and Social Sciences on health policies, education, and behavioral features of the teenager at risk of pregnancy. The study will begin with a conference that will examine present knowledge of the consequences of teen-age pregnancy.

- A workshop-conference to prepare guidelines for the diagnosis and treatment of toxoplasmosis.

- A critical review of the scientific literature on low-level lead toxicity in children, to be followed by a conference to propose research needs and elucidate policy implications.

- A study of out-of-hospital birthing practices to define issues, review the state of the art, identify what data should be collected to address the risk-benefit issue, examine the criteria under which various out-of-hospital alternatives operate, and propose research needs.

- A study to evaluate alternative treatments for children who need respiratory support, including consideration of the costs of such treatments and the ethical considerations.

- An evaluation of the scientific basis for the diagnosis and treatment of learning disabilities.

MEDICAL FOLLOW-UP AGENCY

COMMITTEE ON EPIDEMIOLOGY AND VETERANS FOLLOW-UP STUDIES

Summary Description: This program originated in 1946. It facilitates the use of federal records, chiefly the medical records of the armed forces and of the Veterans' Administration (VA), for medical research. The Medical Follow-up Agency (MFUA) acts as a records and statistical resource, aiding qualified investigators to obtain the information they require from the records and participating in the analysis of data. It is supported by contracts with the VA, several of the institutes of the National Institutes of Health, the Department of Energy, and the Department of Defense. From time to time, individual studies are supported by other agencies or by subcontracts with universities. The Committee on Epidemiology and Veterans Follow-up Studies provides policy guidance.

Membership:

Brian MacMahon, Chairman
Ransom J. Arthur
Michael E. De Bakey
Joseph F. Fraumeni, Jr.
Leon Gordis
Barbara S. Hulka
Leonard T. Kurland
Robert W. McCollum
Paul Meier
Oglesby Paul
Dorothy P. Rice
H. Eldon Sutton

Subcommittee on Twins:

H. Eldon Sutton, Chairman
Gordon Allen
Bruce K. Eckland
Walter E. Nance
Sandra W. Scarr

Subcommittee on Exposure at Tests of Nuclear Weapons:

James F. Crow, Chairman
John A. Auxier
George B. Hutchison
Alfred G. Knudson, Jr.
Raymond Seltser
H. Eldon Sutton

Staff:

Seymour Jablon, Director
Zdenek Hrubec
Robert J. Keehn
James E. Norman, Jr.
C. Dennis Robinette*
A. Hiram Simon

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*On assignment at RERF in Japan during FY 1979.

Meeting:

March 15, 1979

Accomplishments: Projects active during the reporting period are summarized below.

- Medical Genetic Studies of Twins (supported by the National Heart, Lung, and Blood Institute)

Twins make possible some of the most incisive approaches available for the study of complex human events by providing control of covariables in pairs of individuals of the same age and family background and, in the case of monozygotic twins, almost always of the same genotype. The twin program of the MFUA is based on a registry of 15,900 pairs of twin veterans who participate in a variety of medical-genetic studies in person and through the extensive records resources of the military agencies and of the VA. The program is concerned with the exploitation of this resource, with its maintenance, with the preservation of its applicability to a wide variety of research objectives, and with the activities necessary to evaluate feasibility and to develop methods for new investigations. A Subcommittee on Twins monitors the activities of the program, including the selection of specific research efforts on the basis of appropriate research protocols.

Studies that have been completed concern the role of smoking in relation to respiratory and cardiovascular symptoms, residence-associated exposure to air pollution in relation to respiratory symptoms, change in ocular pressure after application of corticosteroids, genetics of atopic dermatitis and psoriasis, genetics of multiple sclerosis, genetics of immunoglobulin E, evaluation of genetic factors in early mortality, evaluation of twin concordance for cancer and ischemic heart disease morbidity and mortality, and identification of genetic influences on income and on other economic and social characteristics. The feasibility of evaluating genetic influence on items on the Thurstone Temperament Schedule has been determined.

Current studies include an analysis of mortality and of cardiovascular and respiratory disease morbidity in relation to findings of earlier clinical examinations focused on cardiovascular disease risk factors. Information in the diagnostic index of the Registry is being evaluated to determine the extent to which genetic factors determine the appearance of organ-specific complications of alcoholism, such as liver cirrhosis, alcoholic psychosis, and pancreatitis. Contact is being sought with twin pairs with one or both members having the diagnosis of parkinsonism. The purpose is to evaluate twin concordance of the disease and also to compare early history of members of disease-discordant twin pairs in an attempt to find variables of epidemiologic interest. Twin pairs with one or both members having the diagnosis of lung cancer or of bladder cancer are being studied to evaluate within-pair differences in carcinogen metabolites and other biochemical characteristics.

Planning is far advanced on a program of reexamining the twins who participated almost 10 yr ago in the study of cardiovascular disease risk factors. A procedure for sampling of alveolar macrophages of identical co-twins of lung cancer patients has been proposed. A study plan is being developed for ophthalmic evaluations on twins living in Florida to determine prevalence and twin concordance of eye disorders, particularly senile macular degeneration.

Information generated by the current studies is routinely incorporated into the operating files of the Registry. The files have been updated with information on mortality through 1978. An updating with information on 1978 hospitalizations and on disability compensation and pension claims in the VA system is being sought.

- VA Cooperative Trials of Cancer Therapy (supported by the Veterans' Administration)

Although the surgical removal of the malignant disease has achieved considerable success in the treatment of solid tumors, not all patients are cured. VA surgeons treating carcinomas of the lung, stomach, and large bowel, encouraged by the early promise of chemotherapy, have developed a collaborative effort involving 26 hospitals to test the value of adjuvant therapy added to definitive surgery in achieving a higher cure rate. The MFUA is the statistical coordinating center, responsible for experimental design and for the storage, processing, and analysis of data.

Twenty-six protocols involving six sites (lung, stomach, colon, pancreas, head and neck, and esophagus) have been initiated, and by January 1, 1979, a total of 11,127 patients had been accepted for study. Three new trials have just been initiated. One is a study to compare three regimens for administering the drug, 5-fluorouracil, shown in earlier trials to improve survival significantly after resection of the large bowel. The second new protocol is intended to determine whether, after a lung resection without evidence of metastasis in the surgical specimen, the patient's immune system can be stimulated with BCG to reject residual tumor cells. In the third new protocol, patients with microscopic evidence of spread in lymph nodes removed with the lung tumor will be entered into a trial of postoperative regional radiation therapy with the goal of reducing regional recurrence.

A large experience of well-documented cases has been accumulated, whose use goes beyond the evaluation of therapeutic modalities. Among the uses are the description of the disease process, the study of reasons why resection is not 100% effective in eliminating the disease from the body, and the identification of characteristics of the patient and his disease that predict success (or failure) of surgical management. With this knowledge, the operation can be refined to optimize its effectiveness.

A study of the occurrence of second primary disease after resection for carcinoma of the large bowel has recently been completed. This study was undertaken in collaboration with the National Cancer Institute, using patients in the early trials to determine whether new primary disease is caused by drugs used in the trestment of cancer, in this case thio-TEPA (triethylenethiophosphoramide) and FUDR (5-fluorodeoxyuridine). No evidence suggested that drug treatment (thio-TEPA or FUDR) increased the incidence of second primary disease, nor was there any evidence that, having developed large bowel carcinoma, these patients were at an increased risk of developing new primary disease.

- Epidemiology, Course, and Prognosis of Amyotrophic Lateral Sclerosis (supported by the National Institute of Neurological and Communicative Disorders and Stroke)

Amyotrophic lateral sclerosis (ALS) is a progressive motor disease of unknown etiology and rapidly fatal course. With only 1,000-1,500 deaths annually in the United States, large series are difficult to accumulate and epidemiologic studies quite rare. Speculations as to etiology range from a purely genetic basis to an unknown exogenous agent. This study of ALS in veterans was aimed at the identification of risk factors and of prognostic characteristics of onset. The method used was a case-control study of the military records of persons dying of ALS in the interval 1963-1967 versus controls matched on age, branch of service, and date of entry into military service. A report concerned with risk factors for the disease has been submitted for publication.

An unexpected finding is that ALS patients have an unusually high incidence of traumatic injuries many years before onset. The meaning of this intriguing finding remains obscure.

- Late Mortality and Morbidity Effects of Occupational Exposure to Microwave Radiation (RADAR) (supported by the Bureau of Radiological Health)

Man is increasingly exposed to microwave energy in his daily life. The health implications of exposure to such radiation are not understood, and protective standards have no firm biologic basis.

This study had the purpose of assessing the effects of microwave radiation on human health by relating occupational exposures to mortality throughout the veteran period and to hospitalizations in service and VA hospitals.

Two occupational cohorts, one maximally exposed, and the other minimally exposed, were compared. Each consisted of approximately 20,000 men who were graduated from a Navy technical school during the Korean Conflict. No differences were identified between the cohorts in either mortality or morbidity attributable to exposure to microwaves. A report has been prepared and submitted for publication.

- Early Predictors of Cardiovascular Disease (supported by the Veterans' Administration)

It has been made clear by the Framingham Study and others that the incidence of coronary heart disease is a strongly increasing function of blood pressure over at least an 18-yr period of followup. Study cohorts have consisted, for the most part, of older persons; thus, at Framingham, no person was included in the study who was under 45 yr old at the first examination. The aims of this study have been to take advantage of an existing file to make observations concerning men younger than 45 at examination and to extend the duration of study.

The 1944-1945 studies of blood pressure and hypertension in 23,000 Army officers by Hillman, Levy, White, and Stroud provide the basis for a 30-yr study of the risk of fatal cardiovascular disease in relation to early observations on blood pressure, height, weight, heart rate, urinary albumin, age, and the like.

The file numbered 12,418 records after elimination of deaths before 1946, men 50 yr old or older at last examination, and disability retirements. During 1946-1977, there were 4,297 deaths in the roster--nearly 35%. Cause of death has been obtained for all except 161; some are not obtainable, but about 100 requests for death certificates are still outstanding. All information, including coded cause of death, will be on magnetic tape, ready for analysis by August 31, 1979.

- Exposure to Tetrachloroethane and Cancer (supported by the National Cancer Institute)

During World War II, the U.S. Army formed some 39 companies (Chemical Processing Companies) for the purpose of impregnating clothing to protect the wearer against mustard gas. The first impregnite developed required the use of tetrachloroethane as a solvent, and plant machinery for this process was assigned to about a quarter of the companies. Later, a water-soluble impregnite was developed and used in a second type of processing plant by the remaining companies. The two groups provide natural rosters of cases and controls for a prospective mortality study to test the hypothesis of increased death rates from malignant tumors or lymphomas among men involved in the tetrachloroethane impregnation process. The rosters have been assembled from unit military records stored at the National Personnel Records Center in St. Louis. Mortality through 1977 has been obtained from the VA BIRLS computer system, and coding of causes of death has been completed. Companies that used the tetrachloroethane solvent have been identified, and the dates during which their plants were in operation have been determined from World War II Army unit histories at the Washington National Records Center in Suitland, Maryland. Analysis is under way, and a draft report is expected by early fall.

- Mortality From Cardiovascular Diseases in Relation to Traumatic Amputations (supported by the Veterans' Administration)

At the urging of veterans groups, Congress, through Public Law 94-433, directed the VA to evaluate samples of veterans having service-connected extremity amputation and to compare them with nonamputee veterans matched by age, sex, and war period. The VA Department of Medicine and Surgery asked the MFUA to carry out this research. The study was started in the summer of 1977.

Mortality from cardiovascular diseases and from other specific causes was compared among groups of subjects with trauma-related amputations that were proximal (at or above elbow, at or above knee) or distal (part of hand, part of foot) and subjects who incurred injuries that resulted in disfigurement. Subjects in all three groups are restricted to World War II Army inductees injured in the line of duty, hospitalized during 1944 or 1945, and discharged from military service for these disabilities. Only trauma to the extremities was included, and the disfigurement group was restricted to such injuries without artery or nerve involvement.

Proximal amputees were matched, one to one, with subjects in the disfigurement group on age at hospital admission and on length of service until that admission. The final sample consisted of 3,890 proximal amputees, an equal number in the disfigurement group, and 2,918 distal amputees.

The proximal amputees had an overall mortality, standardized for age and calendar time, 1.4 times that of the disfigurement subjects and 1.3 times that of the distal amputees. This excess mortality was accounted for by a statistically significant increased risk of death due to ischemic heart disease, other diseases

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of the cardiovascular system, suicide by poisoning, alcoholic cirrhosis, and acute pancreatitis. A report has been accepted for journal publication.

- Participants in Nuclear Tests (supported by the Department of Defense and Department of Energy)

The Center for Disease Control (CDC) has identified eight men who were present at test shot SMOKY in 1957 at the Nevada Test Site and who later developed leukemia. Something over 3,000 men were present at this shot and, in the 21 yr since the shot, about three cases of leukemia would have been expected to occur at population rates for leukemia among males having the age distribution of the men present. These findings, which have been widely quoted, have given rise to concern on the part of some men present at SMOKY and other test shots, have interested Congressional committees, and have, if taken at face value, called into question the risk estimates of radiation-induced leukemia provided in the 1972 BEIR report and the 1977 UNSCEAR report.

There are several possibilities:

- The radiation doses received by the participants may have been seriously underestimated by the military services.

- The findings among participants at SMOKY may be a statistical aberration; there were several hundred test shots at the Nevada site and in the Pacific, and it would not be unusual if an unusually large number of participants at one of them developed leukemia by chance.

- Participants may actually be at increased risk of leukemia.

To distinguish among these possibilities, a study has been undertaken to assess the history of the participants at a number of shots--tentatively, about a dozen. Progress has been slow, because the military services have not yet completed preparation of lists of persons present at various shots. Because priority was given to SMOKY participants by the Army, a roster of 3,140 Army participants was received, in addition to 17 Navy and Marine Corps observers; the Air Force roster is not yet available. The process of checking these rosters against VA files is well advanced, and an informal agreement has been reached to share followup information with CDC.

One problem not yet resolved concerns the means of locating survivors. The best means of obtaining addresses is through the Internal Revenue Service; unfortunately, the Tax Reform Act of 1976 interdicted the use of IRS records for research and health-care purposes. The urgent necessity of obtaining access to this source of addresses was brought to the attention of the Senate Committee on Veterans' Affairs. The Chairman, Senator Cranston, and ranking Minority member, Senator Simpson, both indicated their awareness of the need to resolve the difficulty, and language has been added to the Veterans' Compensation Bill now being considered by the Congress that will, if enacted into law, meet the needs.

- Mortality of Former Prisoners of War (supported by the Veterans' Administration)

The mortality and morbidity experience of U.S. servicemen taken prisoner in World War II and the Korean Conflict, previously reported through 1965, has revealed substantially higher risks of morbidity, disability, and mortality among World War II Pacific-area prisoners and Korean Conflict prisoners than among controls or World War II European-area prisoners. For the World War II prisoners, excess mortality lasted about 8 yr, but their morbidity experience suggests the possibility of a late increase in mortality from cardiovascular disease. For Korean War prisoners, the duration of excess mortality remained uncertain, as it continued throughout the followup period ending in 1965.

The present study extends mortality followup through 1975. The World War II Pacific and Korean Conflict experiences reveal increased risks of dying among former prisoners that, although diminishing with time, persist for 9 and 13 yr, respectively. Mortality from tuberculosis and from trauma contributes to the increase among Pacific ex-prisoners (PWJ), whereas for Korea (PWK) the increase is limited to trauma. An excess of deaths due to cirrhosis of the liver in all three former-prisoner groups appeared from about the tenth followup year. The reported mortality experience for World War II spans 30 calendar years and for Korea 22 calendar years, but no evidence of accelerated aging among former prisoners of war is seen in mortality from the chronic and degenerative diseases. A report has been submitted for publication.

Planning Efforts: The studies in the MFUA program often require major investments of effort and funds, not only by MFUA itself, but also by the federal agencies whose records are used (chiefly the military services and the VA). It is therefore usually necessary to invest heavily in planning, in trials of alternative methods, and in trials of feasibility before a definitive protocol for a proposed study is prepared. Support for such planning efforts is received through a contract with the NIH; a portion of the funds received from the VA is also used for these purposes in relation to studies of special interest to the VA. During FY 1979, a number of planning activities were undertaken.

- Former Prisoners of War

Earlier studies of American former prisoners of war from World War II and the Korean Conflict have revealed that both morbidity and mortality were increased after repatriation. The adverse effects of imprisonment, differing among the three POW groups studied, were most easily recognized among men captured in the Pacific during World War II and least apparent among European former prisoners. The interpretation placed on these findings is that imprisonment--especially by the Japanese, Koreans, and Chinese--involved severe somatic stress leading to a 40% mortality and similarly increased morbidity in captivity due to malnutrition, infection, and physical injury, which has slowly diminished following repatriation. More permanent has been the psychic damage caused by the psychologic stresses of captivity.

The opportunity to learn more about the long-term effects of POW experiences is a continuing one. It is possible that damage not seen at earlier ages will manifest itself as chronic diseases become a more serious problem for these men. A resurvey of the health of former prisoners is planned to consist of three parts: an evaluation of the hospital admission experiences of former POWs since 1965, an evaluation of their current health and social adjustment, and a reconstruction of the health experiences of Pacific prisoners whose deaths up to 1976 were attributed to causes seen more frequently among former prisoners, in an attempt to identify the causes of such increased mortality.

Apart from providing further descriptive information on the health of the former-POW population, this survey will permit a closer examination than was previously possible of the relation between POW stress and health. Various stress scales devised on the basis of the 1967 questionnaire should be reexamined in the light of later hospital admissions rates. The survey should also permit a reexamination of the hypothesis that some of the psychiatric residua and nonspecific somatic symptoms seen in victims of World War II German concentration camps may be explained on the basis of organic brain damage attributable to starvation marked by a degree of weight loss that is not uncommon among the POWs.

- Testicular Cancer

A prospective mortality study of testicular cancer in a selected group of some 18,000 World War II Army men diagnosed as having epididymitis, mumps orchitis, testicular trauma, and (for calibration purposes) cryptorchidism is planned. World War II files of Army hospitalizations for those conditions will be utilized to build study rosters that will be traced for mortality through the VA BIRLS computer system. Excess deaths from testicular malignancies among any of these groups will support the hypothesis that the corresponding condition predisposes men for this cancer.

- Pilot Study of the Interaction of Service-Diagnosed Alcoholics with the VA System

At the request of the VA, the original proposal for a study of mortality among service-diagnosed alcoholics was modified. The new approach is much broader. A number of technical questions have arisen, such as: How do VA contacts of service-diagnosed alcoholics differ among the World War II, the Korean, and the Vietnam periods and from VA contacts of veterans in general? For what subsamples of these alcoholics and of other veterans is there sufficient substantive information in the VA system to launch a definitive study? Could study subjects be located from available VA address information? To answer these questions, a feasibility evaluation is being proposed on the basis of a stratified sample of about 300 servicemen from each of the three periods who were admitted for chronic alcoholism. They are to be compared with a corresponding sample of servicemen admitted for acute nasopharyngitis. This feasibility evaluation is expected to determine whether there is a basis in the VA system for definitive studies of the natural history of alcoholism.

- Preparation of Diagnostic Index to Navy Hospital Admissions in World War II

Since the 1973 fire at the National Personnel Records Center, in which perhaps 80% of Army records for World War I, World War II, and the Korean Conflict were destroyed, the staff of the MFUA has sought ways of making greater use of Navy records, which escaped with little damage. The Navy "Fa-card" file in St. Louis (about 15 million) could, if punched and put on magnetic tape, provide a diagnostic index to the Navy World War II medical experience comparable with that which has been so useful in the study of Army records. Procedures for creating an index have been devised, and a proposal was approved by the Committee on Epidemiology and Veterans Follow-up Studies at its meeting in May 1976. The proposal was later approved by the Surgeon General of the Navy.

The Fa-card file had been scheduled by the Archives and Records Service for destruction in September 1978, but intercession by the MFUA has resulted in a deferment of the disposal until December 31, 1979. Funding for the task has been received from the National Cancer Institute, and work on the project has begun. It is hoped that the task can be completed within FY 1980.

- A Possible Relationship between Household Dogs and Multiple Sclerosis

From case-control interview studies in New Jersey and from a post-World War II multiple sclerosis (MS) epidemic in the Faroe Islands, Dr. Stuart Cook has found evidence linking MS to a prior history of exposure to dogs affected with distemper. The New Jersey studies showed that MS victims are more likely to have lived with indoor dogs than their matched controls. VA hospital discharge files for 1971-1977 list some 1,000 patients with a diagnosis of MS, almost as many with Hodgkin's disease (a first control group), and many thousands of others (a second control group). A pilot study using a mailed questionnaire with telephone-contact followup of non-respondents has been planned that would be directed to random samples of 25 veterans with MS, 25 with Hodgkin's disease, and 50 with other diagnoses. All will have been under 35 yr old at the time of VA hospital discharge. A contract with the National Opinion Research Center of the University of Chicago is being established to test several forms of the questionnaire and administer a refined version to the sample subjects. The results of this feasibility pilot study are expected to be in hand by midautumn.

- Followup Pilot Study of World War II Radar Laboratory Employees

In 1978, the Environmental Protection Agency contacted the MFUA to propose a feasibility pilot followup study of the former employees of the MIT Radar Laboratory, which operated during 1941-1946 with a personnel roster of over 6,000 for the entire period. If it proves possible to locate a sufficiently large proportion of a random sample of these persons, it would be possible to investigate the late medical effects of long-term exposure to microwave radiation.

The pilot study was based on a random 2% sample of a roster of 6,600 former employees compiled through MIT personnel files and historical records. Employees with college degrees or technical expertise in electronics proved to be the most promising group for an intensive full-scale followup, from the standpoint of trace-abilility, length of employment, age in 1945, and estimated degree of microwave exposure. A brief report summarizing the results of the pilot study has been prepared.

- Talc Poudrage Treatment for Spontaneous Pneumothorax

For a period of about 20 yr, beginning in the middle 1930s, recurrent spontaneous pneumothorax was commonly treated by the insufflation of a talc poudrage (iodized talc pleurodesis) into the pleural cavity. The preparation was typically a mixture of mineral talc containing 80% magnesium silicate (the chrysotile form of asbestos is a hydrous silicate of magnesium) and 0.5-1%

iodine. In Britain in 1968, a 37-yr-old man was treated by this method for spontaneous pneumothorax and died 2 yr later from a systemically disseminated chest wall tumor that originated at the site of introduction of the talc. It has been hypothesized that this treatment may predispose patients to the development of malignant lung tumors, particularly pleural mesotheliomas.

At the request of the Navy's Bureau of Medicine and Surgery, a search is under way to identify Army and Navy, hospital admissions with this diagnosis during the 1940s and 1950s who might have received this form of treatment. A cause-specific mortality ascertainment could then be made for those persons.

- Occupational Mortality and Morbidity in Navy Personnel

The Bureau of Medicine and Surgery has asked the MFUA to investigate the resources available within the various record-keeping systems of the U.S. Navy and U.S. Marine Corps for the purpose of planning mortality and morbidity studies of a broad range of duty assignments. Cohorts of the Korean Conflict period can now be followed up for at least 25 yr. The goal is to characterize the largest groups of Navy classification ratings (occupation categories) on the basis of morbidity and long-term mortality. Another phase of this effort would be the identification of current Navy personnel by classification rating, to establish a prospective cohort mortality study of occupational groups for persons entering service during the Vietnam Era.

- Radiation Exposure of Air Crews

The National Cancer Institute has asked the MFUA to explore the feasibility of examining the effects of small doses of ionizing radiation by study of Strategic Air Command (SAC) flying personnel. The average radiation dose at sea level from cosmic radiation is about 30 mrems/yr, or about one-third of the total background radiation of about 100 mrems. The dose rate from cosmic radiation increases rapidly with altitude, however--the hourly rates are:

Sea level	0.0033 mrem
13,000 ft	0.024 mrem
26,000 ft	0.15 mrem
40,000 ft	0.58 mrem
46,000 ft	0.9 mrem

Thus, at the altitude of 45,000 ft, which SAC B-52 airplanes maintained, the dose rate from cosmic radiation was more than 200 times that at sea level. Air crews would have received doses exceeding 1 rem/yr, or more than one-fifth of the current limit for occupational exposure.

It has been determined that a roster of several thousand exposed flyers could be constructed and that a dose index could be constructed for each from flight logs. Discussions with the National Cancer Institute continue concerning the desirability of undertaking a study.

- New Followup of Dorn Cohort

Harold Dorn organized a study of some 300,000 veterans of World War I, using the VA's insurance files. He obtained questionnaires concerning smoking histories and then studied mortality by cause through 1956. Harold Kahn extended the followup to 1962, and Eugene Rogot later extended it to 1969. At that time 107,000 men had died, and 187,000 were still living. Because the youngest members of the cohort would be in their 70s now, mortality has undoubtedly been very high during the last decade.

The National Cancer Institute is interested in documenting the later course of mortality, especially from cancer, but also from other causes, in relation to the smoking histories originally obtained, and the MFUA has begun an exploration of the usefulness of various approaches to this large task.

COMMITTEE ON MILITARY ENVIRONMENTAL RESEARCH

Summary Description: The Committee was established to assist the U.S. Army Medical Research and Development Command (USAMRDC) with its program of environmental research. From time to time, the Command is directed to establish safe limits in contamination problems that are peculiar to the military and for which research is necessary to create a data base--for example, wastes from munition manufacture, land renovation at contaminated Army reservations, and the land disposal of wastewater. The Committee, assisted as required by *ad hoc* subcommittees, provides USAMRDC with critical reviews of proposed research approaches.

Membership:

Gary A. Van Gelder, Chairman
Franklin D. Aldrich
Edward J. Cleary
Robert C. Cooper
W. Clark Cooper
Kenneth L. Dickson
Robert T. Drew
Paul D. Haney
Harold G. Petering
Leo Weaver
Leonard H. Weinstein
Elizabeth K. Weisburger

Staff:

John Redmond, Jr.	Norman Grossblatt (Editor)

Meetings:

September 22, 1978	
April 5, 1979	(Subcommittee on Land Renovation)
April 6, 1979	(Subcommittee on Occupational Health)

Accomplishments: On April 24, 1979, a statement was transmitted to the sponsor concerning the review of a proposal of toxicologic studies on TNT and TNT wastewater. The statement emphasized the scope of work and pointed out that the request for proposal was ambiguous in its stated time requirements. It also indicated that the syntheses of some of the compounds to be studied might prove to be difficult.

Another statement was transmitted to the sponsor on May 8, 1979; this one pertained to the review of interim guidelines for upper limits of exposure of workers engaged in the disposal of 3-quinuclidinyl benzilate (BZ). Included in the statement were recommendations as to minimal requirements for preemployment physical examinations, on-the-job surveillance of physical signs and symptoms, and protective equipment.

COMMITTEE ON THE EFFECTS OF MULTIPLE IMMUNIZATIONS

Summary Description: The Committee was established to study the effects of multiple, varied, and frequent immunizations for personnel conducting research in, or occupationally exposed to, biologic warfare agents and military personnel who remain in an immunized state for indefinite periods for worldwide commitment, which could include the threat of biologic warfare.

Membership:

Edwin H. Lennette, Chairman
Giuseppe A. Andres
H. Hugh Fudenberg
Vernon Knight
Charles H. Rammelkamp
John B. Robbins
Stefano Vivona
William O. Weigle
Theodore E. Woodward

Consultant
Wolf W. Zuelzer

Staff:

John Redmond, Jr. Norman Grossblatt (Editor)

Meetings:

February 6, 1979
April 16, 1979

Accomplishments: The Committee is in the process of preparing a report, which is to be submitted in August 1979, including a literature review and discussion of diseases occasionally associated with multiple immunizations. In this report, the Committee will evaluate the reliability of present data, as well as the validity of statements that multiple immunizations administered over a number of years do or do not produce adverse effects. The data used by the Committee as a basis for its report include those from a study by the U.S. Army Medical Research Institute of Infectious Diseases and from a preliminary study by the National Cancer Institute.

The report will also contain recommendations on new screening tests that should be used in future surveys of persons with documented histories of intensive immunization over extended periods.

COMMITTEE ON VETERINARY MEDICAL SCIENCES

Summary Description: The Committee was organized in 1975 to provide a focal point within the NRC for considerations related to veterinary medical sciences. Its establishment was initiated in recognition of the important role that the veterinary medical sciences play in the biomedical sciences and of their contribution to human health. It is concerned with the welfare of veterinary medicine, with maximizing the participation of veterinary medical scientists in biomedical research and education, and with making the resources of the veterinary medical community available to the biomedical research endeavor.

Membership:

Leo K. Bustad, Chairman
Walter C. Bowie
Thomas B. Clarkson
W. Jean Dodds
George T. Harrell
Robert R. Marshak
Edward C. Melby, Jr.
Calvin W. Schwabe
William H. Stone

Staff:

June S. Ewing
John Redmond, Jr.

Meeting:

November 1, 1978

Accomplishments: The Committee met to discuss the role of the veterinary medical sciences in biomedical research and to discuss a recently published study of veterinary manpower. It was decided that a key issue in veterinary medical training is postgraduate specialty training and that legislative initiatives will have an important effect on manpower needs. The Committee drafted a proposal on the impact of legislation and regulations on the need for veterinary manpower. The proposed study would determine the character and distribution of the need for veterinary medical scientists and develop recommendations for methods to meet deficiencies in specialized professional manpower.

USA NATIONAL COMMITTEES

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL BRAIN RESEARCH ORGANIZATION (USANC/IBRO)

Summary Description: The International Brain Research Organization (IBRO) was founded in 1960 as an international body to bring together neuroscientists of different disciplines from many countries and to provide a means for them to cooperate in furthering the aims of brain research. Membership is composed of both individual and national members, the latter required to adhere in one of five dues categories. In May 1972, the NAS, at the invitation of the Secretary General of IBRO, became the adhering body for the United States and established the USA National Committee to effect appropriate U.S. participation in IBRO and to advise the NAS on international matters relevant to neuroscience. This is a continuing activity of indefinite duration.

Membership:

Eugene Roberts, Chairman
Theodore H. Bullock
W. Maxwell Cowan
Robert W. Doty
George B. Koelle
Rodolfo Llinas
Dominick P. Purpura
Berta V. Scharrer
Richard F. Thompson

Staff:

June S. Ewing

Meetings: None

Accomplishments: The Committee sent a representative to the IBRO Executive Committee meeting in Paris on June 24, 1979, where plans were continued for the First International Congress on the Brain, which will be held in Lausanne, Switzerland, in April 1982. The Committee repeated its recommendations that IBRO workshops and fellowships be stepped up and that the United States specifically offer opportunities for fellowships. It also recommended that individual membership in IBRO be expanded, with emphasis on younger scientists.

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL COUNCIL OF SOCIETIES OF PATHOLOGY (USANC/ICSP)

Summary Description: In 1957, the World Health Organization (WHO) undertook a program to promote worldwide standardization of tumor classification in the furtherance of medical treatment and research in the field and established 27 International Reference Centers (IRCs) to handle the operational aspects of the tumor types selected for study. In 1962, at the request of the WHO, the International Council of Societies of Pathology was formally established as an international organization to advise the Cancer Unit of WHO concerning the program. The NAS has since maintained the USA National Committee to coordinate the policies and activities of the four participating societies of pathology in the United States: the American Society of Clinical Pathologists (ASCP), the American Association of Pathologists (AAP), the College of American Pathologists (CAP), and the U.S.-Canadian Division of the International Academy of Pathologists (IAP). To date, 20 IRCs have completed their work, published manuals, and prepared transparencies for distribution. Revisions have begun on two classifications--lung and breast.

Membership:

Leland D. Stoddard, Chairman
H. Russell Fisher, Vice Chairman
William H. Hartmann

Bruce H. Smith
Robert E. Stowell

Ex officio
F. K. Mostofi

Staff:

June S. Ewing

Meetings:

October 30, 1978
January 22, 1979
April 30, 1979

Accomplishments: The Committee accomplishes its promotional and educational goal by sending an exhibit, constructed and maintained by the Armed Forces Institute of Pathology, to national and regional meetings of pathology societies and by arranging for lectures during the meetings by pathologists who are experts on the particular tumor being discussed and who have usually been associated with the development of its classification. During FY 1979, the exhibit was shown as follows:

October 1978	Liver, biliary tract, pancreas, and testis	IAP Congress, Jerusalem
October 1978	Nongynecologic sites	CAP-ASCP, St. Louis
March 1979	Upper respiratory tract, liver, and biliary tract	IAP, San Francisco

Lectures were as follows:

October 1978	Liver, biliary tract, and pancreas--J. Gibson	IAP Congress, Jerusalem
October 1978	Testis--V. McGovern	IAP Congress, Jerusalem
October 1978	Nongynecologic sites--W. Christopherson	CAP-ASCP, St. Louis
March 1979	Upper respiratory tract--W. Bauer	IAP, San Francisco
March 1979	Liver and biliary tract--K. Ishak	IAP, San Francisco

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION AGAINST CANCER (USANC/UICC)

Summary Description: The International Union Against Cancer (UICC) was founded in 1933 at the I International Cancer Congress in Madrid. In 1952, the USA National Committee was established by the NAS to coordinate the activities of scientists in the United States with those of other members of the UICC, which is now composed of 180 members in 75 countries. Committee membership is made up of two representatives each from the American Cancer Society and the National Cancer Institute, one representative each from the other full members of the UICC in the United States, and officers of the UICC residing in the United States. This is a continuing activity of indefinite duration.

Duties of the Committee are to seek support for U.S. participation in the UICC, to nominate and brief representatives to meetings of the UICC, to provide for the administration of the payment of the national subscription to the UICC on behalf of the United States, to establish an office or facilities for the transmission of information related to cancer, to encourage membership in the UICC by U.S. organizations, and to recommend to the UICC Nominating Committee candidates for all offices.

Membership:

C. Chester Stock, Chairman
Baruch S. Blumberg
David B. Clayson
Joseph F. Fraumeni, Jr.
Oscar N. Guerra
Thomas C. Hall
Robert C. Hickey
William B. Hutchinson
A. Hamblin Letton
William V. McDermott
Edwin A. Mirand
W. P. Laird Myers
Gregory T. O'Conor
William W. Shingleton
George Weber
Francis J. Wilcox

Ex officio
Charles R. Ebersol
Gerald P. Murphy

Staff:

June S. Ewing

Meetings:

September 15, 1978
January 22, 1979

Accomplishments: The Committee conducted a travel-grant program to benefit U.S. scientists who could not otherwise attend the XII International Cancer Congress, which was held in Buenos Aires, Argentina, on October 5-11, 1978. Of 443 applications received and reviewed, the Selection Subcommittee approved 417 for travel grants, including the 19 delegates to the UICC General Assembly, which was held in conjunction with the Cancer Congress. Contributions toward the travel program were received from the American Cancer Society, the Damon Runyon-Walter Winchell Cancer Fund, the Edward Mallinckrodt, Jr., Foundation, and the National Cancer Institute. Members of the Committee were active on the scientific program committee of the Congress Organizing Committee. The Committee has invited the UICC to hold the XIII International Cancer Congress in the United States in 1982. The site selected was Seattle, Washington, and the Congress will be held on September 8-15, 1982.

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF PHYSIOLOGICAL SCIENCES (USANC/IUPS)

Summary Description: Although International Physiological Congresses have been held triennially since 1889, the International Union of Physiological Sciences was incorporated in 1953, and the USA National Committee was formally established by the NAS in 1955. The Committee's major effort is the implementation of a travel-grant program to assist qualified American scientists in attending the international congresses. It is also responsible for briefing U.S. delegates to IUPS General Assemblies, which coincide with congresses; it encourages cooperative enterprises to advance physiologic knowledge; and it advises the NAS on all matters concerning U.S. participation in the IUPS. It is a continuing activity of indefinite duration.

Membership:

William F. Ganong, Chairman
John S. Cook, Vice Chairman
Charlotte P. Mangam, Secretary
James B. Bassingthwaighte
Charles F. Code
David H. Cohen
Robert E. Forster, II

Francis J. Haddy
Arnost Kleinzeller
Orr E. Reynolds

Ex officio
John M. Brookhart
John R. Pappenheimer

Staff:

June S. Ewing

Meetings:

April 7, 1979	(Dallas, TX)
April 27, 1979	(Administrative Subcommittee)

Accomplishments: The Committee prepared a proposal for a travel-grant program for the XXVIII IUPS Congress, to be held in Budapest, Hungary, in July 1980. The proposal was submitted to the Fogarty International Center of the National Institutes of Health, which will coordinate with other supporting agencies, possibly including the Office of Naval Research, the Air Force Office of Scientific Research, the National Aeronautics and Space Administration, the National Science Foundation, the Department of Energy, and the Department of Agriculture.

COOPERATIVE STUDY

PANEL ON THE EXTENT OF RADIATION FROM THE PAVE PAWS RADAR SYSTEM

Summary Description: The Panel was transferred from the Assembly of Engineering's Air Force Studies Board to the ALS by action of the Governing Board in the summer of 1978. The Panel's purpose was to examine the extent of nonionizing radiation from the Air Force's PAVE PAWS radar system at Otis Air Force Base, Cape Cod, Massachusetts, and the exposure of the public to the radiation. The Assembly of Engineering concurrently performed a study on the engineering safety characteristics of the system.

Membership:

Stephen F. Cleary, Chairman
W. Ross Adey
Om P. Gandhi
Don R. Justesen
Brockway McMillan
Shields Warren
Clayton S. White
George M. Wilkening

Consultants
Arthur W. Guy
David E. Janes
Oswald G. Villard, Jr.

Staff:

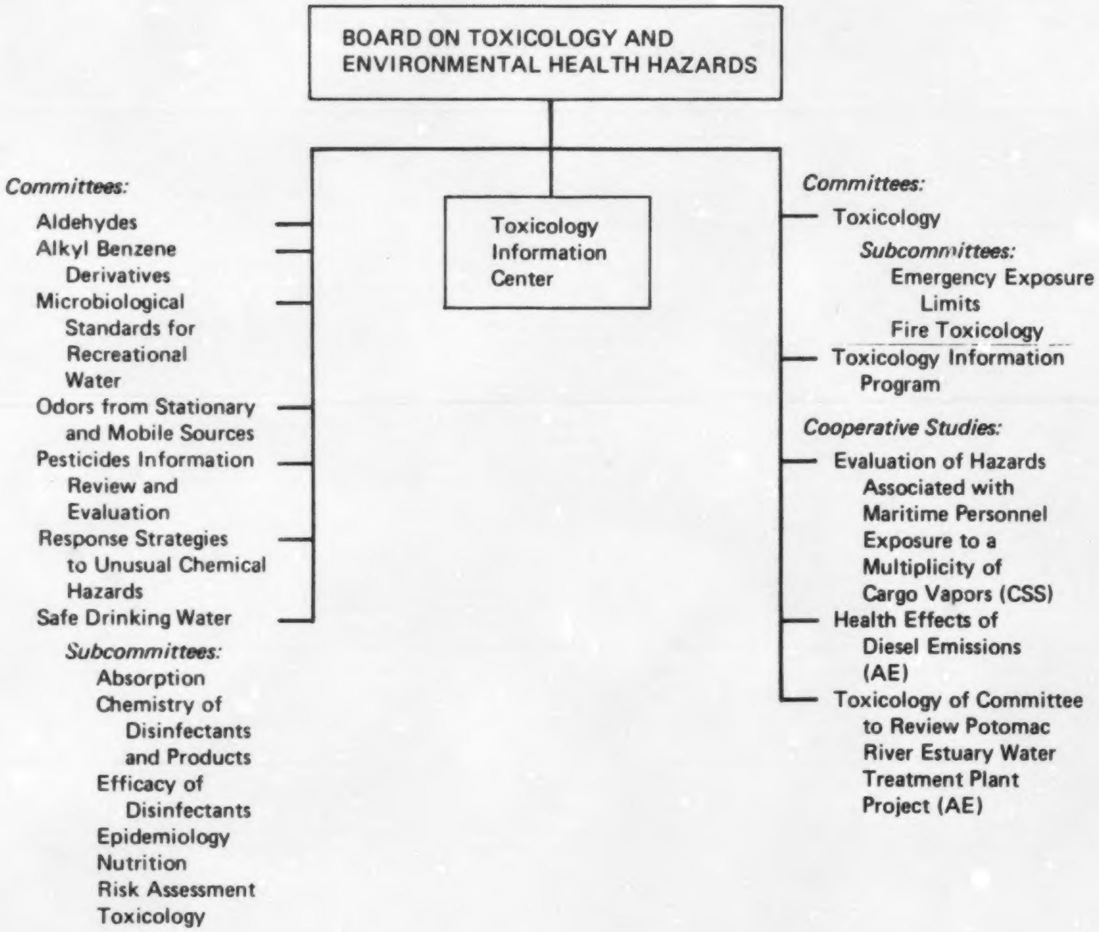
Alvin G. Lazen
Kenneth McAlpine (AE)
Norman Grossblatt (Editor)

Meetings:

November 13-14, 1978
December 11-12, 1978

Accomplishments: The Panel completed the report, *Analysis of the Exposure Levels and Potential Biologic Effects of the PAVE PAWS Radar System*, and transmitted it to the Air Force in April 1979. The report stated that the PAVE PAWS radar system may be anticipated to expose a limited number of members of the general public intermittently to low intensities of pulse-modulated microwave fields with maximal instantaneous intensities of $100\ \mu W/cm^2$ or less and time-averaged intensities lower by two orders of magnitude. There are no known irreversible effects of such exposure on either morbidity or mortality in humans or other species. Thus, it is improbable that exposure will present any hazard to the public. In view of the known sensitivity of the mammalian central nervous system to electromagnetic fields, especially those modulated at brainwave frequencies, the possibility cannot be ruled out that exposure to PAVE PAWS radiation may have some effects on exposed people. Because these effects are still hypothetical, it is not feasible to assess their health implications. Such assessment will require additional research and surveillance and must be addressed in future evaluations of the potential exposure effects of PAVE PAWS and other high-power-output radar systems.

BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS



BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS

Toxicology Information Center

Committees:

- Aldehydes
- Alkyl Benzene Derivatives
- Microbiological Standards for Recreational Water
- Odors from Stationary and Mobile Sources
- Pesticides Information Review and Evaluation
- Response Strategies to Unusual Chemical Hazards
- Safe Drinking Water

  Subcommittees:
  - Absorption
  - Chemistry of Disinfectants and Products
  - Efficacy of Disinfectants
  - Epidemiology
  - Nutrition
  - Risk Assessment
  - Toxicology

Committees:

- Toxicology

  Subcommittees:
  - Emergency Exposure Limits
  - Fire Toxicology
- Toxicology Information Program

Cooperative Studies:

- Evaluation of Hazards Associated with Maritime Personnel Exposure to a Multiplicity of Cargo Vapors (CSS)
- Health Effects of Diesel Emissions (AE)
- Toxicology of Committee to Review Potomac River Estuary Water Treatment Plant Project (AE)

BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS

Summary Description: In October 1974, a visiting committee was appointed by the Assembly to review the activities of committees that were concerned with toxicology and related matters. Chief among the recommendations contained in the September 1975 report of the visiting committee was that the Assembly expand its activities in toxicology by establishing a division of toxicology and health hazards within which appropriate activities would be supervised and coordinated. The Assembly discussed this proposal at its meetings in November 1975 and January 1976 and voted in March 1976 to establish, under the Executive Office of the Assembly, a board on toxicology and environmental pollutants. After discussion of the proposal with other elements of the NRC, the Assembly, in November 1976, approved the establishment of the Board on Toxicology and Environmental Health Hazards (BOTEHH). This proposal was approved by the NRC Governing Board on January 22, 1977, and the first members of the Board were appointed in May 1977. Support for the new organization was not forthcoming until the signing of a contract with the Environmental Protection Agency, in September 1977, to undertake studies of sulfur oxides and other pollutants.

The Board provides guidance and leadership to the Assembly on matters of toxicology and environmental health hazards and contributes to its ability to address broad issues of occupational and environmental toxicology. It serves as the Assemby focus for deliberation on issues in these fields and aids other elements of the NRC in carrying out related studies.

Membership:

Norton Nelson, Chairman
Earl P. Benditt
John J. Burns, Jr.
John W. Drake
Ronald W. Estabrook
Ronald W. Hart
Julius E. Johnson
Philip J. Landrigan
Victor G. Laties
Brian MacMahon
David E. Reichle
Reuel A. Stallones
Bert L. Vallee
Gerald N. Wogan

Staff:

Robert G. Tardiff, Executive Director
Gordon W. Newell

Meetings:

September 20-21, 1978
November 13, 1978
January 31, 1979
May 7-8, 1979

Accomplishments: The Board has continued its development of a program aimed at the synthesis of a framework that can be used to establish priorities for research on chemicals. The Board has been responsible for the initiation within ALS of a program aimed at exploring associations between dietary factors and human cancer incidence and risks. BOTEHH has provided a forum for dialogue on the scientific questions surrounding the health risks of adding nitrites to foods, as well as health risks ascribed to the herbicide 2,4,5-T. At the request of the Governing Board, BOTEHH addressed the risk-reduction philosophy as an alternative to the use of absolute risk in regulatory processes. The Board has devoted much effort in the development of a program on the risk assessment of chronic toxicants. The Board has undertaken extensive negotiations to establish a Committee on Chemical Environmental Mutagens, which is expected to be initiated in September 1979.

COMMITTEE ON ALDEHYDES

Summary Description: BOTEHH, through a contract with the Environmental Protection Agency, formed this Committee to study formaldehyde, acrolein, and other selected aldehydes as environmental pollutants. The Committee's report, to be delivered to EPA by April 1, 1980, will consider the sources, chemical and physical characteristics, measurement, and prevalence of the compounds under this study. This information will include the chemistry of atmospheric transformation of the compounds; their automotive, aircraft, and industrial emission; and the use of products or compounds from which they are formed. The report will present and evaluate information on the effects of the selected aldehyde compounds on human health and welfare, with emphasis on uniquely sensitive populations, the sources of these aldehyde pollutants, and the concentrations to which humans are likely to be exposed. This information may be used by the sponsor to establish environmental quality standards in its consideration of the need to promulgate regulations for the control of aldehyde pollutants.

Membership:

Robert Frank, Chairman
Lyle F. Albright
Eileen Brennan
Stuart M. Brooks
Jack G. Calvert
Craig D. Hollowell
David H. W. Liu
Jon P. Nelson
Charles F. Reinhardt

Staff:

James A. Frazier
Norman Grossblatt (Editor)

Meetings:

February 14, 1979
April 2, 1979
June 25, 1979

Accomplishments: A detailed outline for the report has been prepared and reviewed by the Committee. Members are preparing a first draft of the report. Source material is being obtained by a research aide and sent to members to whom it is of interest. Several guest speakers have provided valuable information to members of the committee at its meetings.

COMMITTEE ON ALKYL BENZENE DERIVATIVES

Summary Description: This Committee was established in June 1979 to address EPA concerns regarding the environmental and health effects of selected alkyl benzene derivatives. The Committee will review and evaluate the scientific and technical information on five alkylated benzenes and will submit a report to the EPA in June 1980. This report will be one of a series of assessment documents on environmental pollutants that have been requested by the EPA.

Membership:

Robert Snyder, Chairman
Gary P. Cooper
James R. Gillette
Bernard Goldstein
Julian P. Heicklen
Curtis D. Klaassen
Vaun Archie Newill
Robert O'Brien
Hugh M. Pettigrew
V. M. Sadagopa Ramanujam
Christopher Wilkinson

Staff:

Sushma Palmer
Frances M. Peter (Editor)

Meeting:

June 18-19, 1979

Accomplishments: The Committee has devoted its attention to the selection of the specific alkyl benzene derivatives to be studied, to developing a study approach, and to assigning the subjects to be addressed by individual Committee members. Rough drafts of portions of the report are expected to be prepared by midautumn 1979.

COMMITTEE ON MICROBIOLOGICAL STANDARDS FOR RECREATIONAL WATER

Summary Description: The EPA requested an evaluation of the current criteria for recreational water quality, identification of warranted changes, and recommendations for research on water quality.

Membership:

Rita R. Colwell, Chairman
Martin Favero
Edwin H. Lennette
Sumner M. Morrison

Staff:

Riley D. Housewright
Roy Widdus
Frances M. Peter (Editor)

Meetings:

August 1, 1978
October 9, 1978

Accomplishments: The reliability of the current test system was evaluated, and recommendations for research were suggested.

COMMITTEE ON ODORS FROM STATIONARY AND MOBILE SOURCES

Summary Description: As part of the Clean Air Act Amendments of 1977, Congress specified that the EPA study odors. The EPA in turn asked the NAS to study the effects of odors and odorous emission on public health and welfare, the sources of such emission, the technology or other measures available for its control, and the costs and benefits of altenative measures or strategies for its abatement. A part of the task was to determine the feasibility of measuring odors objectively for the purpose of regulatory enforcement. The study undertook to evaluate such issues as the relationship of thresholds for odor detection to intensities that pose adverse health effects, biologic adaptability to odors, and synergistic effects of combinations of odorous compounds.

Membership:

Amos Turk, Chairman
Lloyd M. Beidler
David M. Benforado
William Cain
Thomas D. Crocker
Andrew Dravnieks
Richard A. Duffee
Melvin W. First
R. David Flesh
J. Ronald Miner
David G. Moulton
Edward I. Selig
Janet T. Wittes

Staff:

James A. Frazier
Norman Grossblatt (Editor)

Meetings:

July 19-20, 1978
September 24-26, 1978
November 19-21, 1978

Accomplishments: The Committee has completed its assigned task and has been disbanded. The report prepared by the Committee has been delivered to the sponsor and to the Office of Publications for publication.

COMMITTEE ON PESTICIDES INFORMATION REVIEW AND EVALUATION

Summary Description: Public Law 92-516, the Federal Environmental Pesticide Control Act, provides for the NAS to establish a committee for prompt review and resolution of controversies over scientific and technical facts that arise in the course of hearings before a federal law judge on matters involving pesticide registration and regulation. To meet this responsibility, the Committee on Pesticides Information Review and Evaluation was established in 1977. The basic function of the Committee is to organize and direct the activities of such expert subcommittees as may be established to respond to specific queries. It will also consider broad scientific issues related to the pesticides regulatory process.

Membership:

Kurt J. Isselbacher, Chairman
David B. Clayson
Stanley Goldfarb
James E. Grizzle
Jerard Hurwitz
Alexander Leaf
Dante G. Scarpelli
Edward A. Smuckler
Frank G. Standaert
Myron E. Wegman

Staff:

Robert G. Tardiff

Meetings: None

Accomplishments: No referrals were received during the year.

COMMITTEE ON RESPONSE STRATEGIES TO UNUSUAL CHEMICAL HAZARDS

Summary Description: The Committee originated through the NAS offer to cooperate with the Italian government and scientific community in the aftermath of a chemical explosion at Seveso, Italy, in July 1976. An invitation was extended by the Italian government; and in April 1977, a team of American scientists visited Italy to determine with Italian officials the needs and opportunities for binational cooperation. The U.S. scientists and their Italian counterparts recommended the formation of an official U.S. committee to work in close cooperation with an Italian committee to study the effects of the Seveso incident. The Committee on Response Strategies to Unusual Chemical Hazards, originally identified as the Binational Cooperative Study for Exposure to TCDD, was established in January 1979. The objectives of the Committee go beyond evaluation of newer health data from Seveso in conjunction with the Italian committee and extend to the development of guidelines that may be used to implement a worldwide mechanism for dispatching biomedical researchers to the scene of accidents similar to that at Seveso.

Membership:

Norton Nelson, Chairman
Robert Miller, Vice Chairman
A. L. Burlingame
Aaron B. Lerner
John A. Moore
Sheldon Murphy
Robert A. Neal
Patrick O'Keefe
Alan Poland

Staff:

Robert G. Tardiff

Meetings:

February 1, 1979
March 5-6, 1979 (Rome, Italy)

Accomplishments: At the meeting in Rome, the Committee received from Italian researchers the most recent data on the effects of TCDD exposure on the Seveso area population. It was unanimously agreed that periodic exchanges of ideas on human health risks of environmental pollution episodes that have occurred in both countries would be useful. Foci for cooperation were agreed on, including clarification of risks posed by chemical substances, training of personnel to conduct epidemiologic studies, and formulation of appropriate mechanisms for environmental monitoring. These and other topics will be addressed at a workshop of Italian and American scientists to be held in Italy in the fall of 1979.

COMMITTEE ON SAFE DRINKING WATER

Summary Description: The Safe Drinking Water Act (Public Law 93-523) became effective on December 16, 1974. Part of that Act required the NAS to undertake a comprehensive study of the health effects of the various contaminants found in drinking water. The report *Drinking Water and Health* was published by the Academy in 1977. The Safe Drinking Water Act was amended in 1977 to require that the EPA and Congress receive new information from the NAS at 2-yr intervals after issuance of the original report.

In 1978, the Committee on Safe Drinking Water was reorganized and seven new subcommittees established. The Subcommittee on Epidemiology studied the association between organic compounds in water and cancer frequency and between water hardness and cardiovascular disease in humans. The Subcommittee on Chemistry examined the reactions between several disinfectants and raw water to determine the probable products. The Subcommittee on Toxicology identified the health effects of exposure to these products and others that are of concern because of potential spill situations. The Subcommittee on Risk Assessment examined the prediction of risk to human health, using acute- and chronic-toxicity data from laboratory animals and epidemiologic data. The Subcommittee on Efficacy of Disinfection determined the comparative effectiveness of 14 drinking water disinfectants against selected bacteria, viruses, and protozoan cysts. The Subcommittee on Adsorption evaluated the efficacy of granular activated carbon and other adsorbents for removal of harmful compounds from drinking water. It also examined potentially harmful effects related to the use of these adsorbents. The concern of the Subcommittee on Nutrition was the contribution of drinking water to mineral nutrition in humans. It also identified the substances required for proper nutrition that pose a health risk at high concentrations and that may therefore be candidates for regulation.

Membership:

John Doull, Chairman
Joseph F. Borzelleca
Richard S. Engelbrecht
David G. Hoel
Cornelius W. Kruse
Edwin H. Lennette
J. Carrell Morris
Sheldon D. Murphy
Paul M. Newberne
Malcolm Pike
Marvin A. Schneiderman
Ronald C. Shank
Irwin H. Suffet
Sheldon Wolff

Subcommittee on Adsorption:

Irwin H. Suffet, Chairman
Martin Alexarder
John T. Cookson, Jr.
Francis DiGiano
Robert Kunin
Joseph Shands
Vernon L. Snoeyink

Subcommittee on Chemistry of Disinfectants and Products:

J. Carrell Morris, Chairman
Russell F. Christman
William H. Glaze
George R. Helz
Robert C. Hoehn
Robert L. Jolley

Subcommittee on Efficacy of Disinfection:

Richard S. Engelbrecht, Chairman
Martin Favero
Arnold Greenberg
J. Donald Johnson
Cornelius W. Kruse
Edwin H. Lennette
Walter L. Newton
Vincent P. Olivieri
Pasquale V. Scarpino
Otis J. Sproul

Subcommittee on Epidemiology:

Marvin A. Schneiderman, Chairman
Edward C. Hammond
Ian T. T. Higgins
George B. Hutchison
Abraham M. Lilienfeld
Malcolm C. Pike
Arthur H. Wolff

Subcommittee on Nutrition:

Paul M. Newberne, Chairman
Renate D. Kimbrough
Orville A. Levander
Boyd Lee O'Dell
Daphne A. Roe
Ronald C. Shank

Subcommittee on Risk Assessment:

David G. Hoel, Chairman
David Axelrod
Charles C. Brown
Robert L. Dedrick
Ian C. Munro
Carrol S. Weil
Sheldon Wolff

Subcommittee on Toxicology:

Sheldon D. Murphy, Chairman
Joseph F. Borzelleca
James V. Bruckner
Donald R. Buhler
Hans P. Drobeck
James E. Gibson
Margaret Hitchcock
John C. Loper
Robert E. Menzer
Rudy J. Richardson
Robert J. Roberts
Craig Schnell

Staff:

Riley D. Housewright
Robert J. Golden
Roy Widdus
Frances M. Peter (Editor)

Meetings:

October 10, 1978	
October 23, 1978	(Subcommittee on Epidemiology)
October 23-24, 1978	(Subcommittee on Risk Assessment, Southern Pines, NC)
October 26-27, 1978	(Subcommittee on Toxicology)
November 1-2, 1978	(Subcommittee on Nutrition)
November 17, 1978	
November 27, 1978	(Subcommittee on Adsorption)
December 11, 1978	
January 12, 1979	(Subcommittee on Nutrition)
January 29, 1979	(Los Angeles, CA)
April 9, 1979	
April 9, 1979	(Subcommittee on Adsorption)
April 19, 1979	
April 19, 1979	(Subcommittee on Adsorption)

Accomplishments: The Committee and its subcommittees have written eight reports during FY 1979. These reports are planned for publication by the NAS in two volumes entitled Drinking Water and Health II and Drinking Water and Health III in the fall of 1979.

COMMITTEE ON TOXICOLOGY

Summary Description: The Committee on Toxicology (COT) provides advice to the Air Force, the Army, the Coast Guard, the Consumer Product Safety Commission, the Department of Energy, the Environmental Protection Agency, the National Aeronautics and Space Administration, the Navy, and the Occupational Safety and Health Administration. It suggests studies to these agencies and receives requests from them for advice and assistance under the terms of a contract with the Office of Naval Research and an interagency memorandum of agreement. It considers technical issues of developmental toxicology, recommends environmental exposure limits, suggests specific toxicology testing or research, advises on and participates in field studies on toxicology problems, and evaluates the hazards and health implications of specific product uses.

Membership:

Joseph F. Borzelleca, Chairman
David Axelrod
Ian T. T. Higgins
Warren H. Jones
H. George Mandel
Stata E. Norton
Charles F. Reinhardt
Joseph V. Rodricks
Ronald C. Shank
Philip G. Watanabe

Staff:

Gordon W. Newell
Gary R. Keilson
Norman Grossblatt (Editor)
Frances M. Peter (Editor)

Meetings:

September 22, 1978
January 8, 1979
March 26-27, 1979
June 4-5, 1979

Accomplishments: The Committee organized subcommittees, reviewed reports produced by them, and undertook new tasks on various subjects for its sponsoring agencies:

- Completed a review of the criteria and guidelines for establishing short-term inhalation exposure limits; the report is in final stages of preparation.

- Completed a review of the previously recommended emergency exposure limits (EELs) and continuous exposure limits (CELs) for acrolein; carbon monoxide; chlorine; fluorocarbons 12, 113, and 114; formaldehyde; nitrogen dioxide; ozone; and vinylidene chloride; and began a review of EELs and CELs for 10 additional compounds.

- Organized a subcommittee to evaluate the data on selected chemicals that may pose a hazard to people while indoors and to recommend exposure limits.

- Organized a subcommittee to review a request for assistance in evaluating the magnitude of the health problems alleged to be associated with working at Hill Air Force Base by helping in the design and interpretation of an epidemiology study.

- Approved a subcommittee report that evaluated the significance of chlordane contamination in military housing units; the report is in final stages of preparation.

- Organized a subcommittee to establish principles for recommending acute exposure limits for contaminants in drinking water and to make recommendations for selected compounds.

- Recommended the initiation of assessment documents for the EPA on nitroaliphatic and nitroaromatic amines and indoor air pollutants.

EMERGENCY RESPONSE GROUP

Summary Description: Organized under the COT contract with the Office of Naval Research, the Emergency Response Group provides timely answers to emergencies that arise within any of the COT sponsoring agencies. The Group consists of four toxicologists on the BOTEHH staff, who initially provide verbal responses to requests that are designated as emergencies by the sponsors. These responses are followed by written reports that are reviewed by COT for content and for the logic of the safety evaluation.

Accomplishments: The Emergency Response Group provided verbal advice to the Coast Guard on inhalation exposure limits for phosphine and on the toxicity, deactivation, and disposal of MOCAP and to the EPA on exposure limits in drinking water for o-nitroaniline, 1,1-dichloroethane, 1,2-dichloropropane, formaldehyde, and Tris. Written reports are in various stages of preparation.

SUBCOMMITTEE ON FIRE TOXICOLOGY

Summary Description: The organization of the Subcommittee was recommended by the COT in 1975 in recognition of the increased use of synthetic polymers as construction materials, reports of unusual toxicity of the combustion products of these materials, and the disorganized state of the art of testing of the toxicity of pyrolysis and combustion products of these materials. The Subcommittee evaluated methods for assessing the toxicity of combustion products; developed guidelines for standardizing the measurement of the toxicity of pyrolysis and combustion products for use in selecting materials for interior construction of aircraft, for other confined spaces, and for consumer products; and developed guidelines for using fire-toxicity data in the material-selection process through its report, Fire Toxicology: Methods for Evaluation of Toxicity of Pyrolysis and Combustion Products, published in August 1977.

Membership:

Charles F. Reinhardt, Chairman	Jean H. Futrell
Herbert H. Cornish	William E. Gibbs
Arthur B. DuBois	J. Douglas MacEwen
Robert M. Fristrom	Carl W. Walter

Staff:

Gary R. Keilson

Gordon W. Newell

Meetings: None

Accomplishments: The Subcommittee is engaged in a review of data being generated by various laboratories using test systems designed according to guidelines recommended by the Subcommittee and in evaluation of the applicability of various test methods for predicting the effects of pyrolysis and combustion products on humans.

TOXICOLOGY INFORMATION PROGRAM COMMITTEE

Summary Description: The Toxicology Information Program (TIP) was established in the National Library of Medicine (NLM) in 1966 to develop computer-based files of toxicology information that would become widely available. In response to a request for assistance from the director of NLM, the Toxicology Information Program Committee was established in June 1968. By the end of the year, it had submitted its recommendations concerning a long-range concept of the TIP. The Committee has since provided quarterly reviews of the progress of the TIP and evaluation of proposed new projects. In recent years, the advisory services of the Committee have been extended to include some activities sponsored by the Toxicology Information Subcommittee of the HEW Committee to Coordinate Environmental and Related Programs.

Membership:

Tom S. Miya, Chairman	Robert E. Menzer
Ralph L. Engle, Jr.	Paul E. Morrow
Richard Henderson	Gabriel L. Plaa
Dorothy B. Hood	Barry H. Rumack

Staff:

George R. Hoffmann	Robert G. Tardiff
Henry S. Parker	Norman Grossblatt (Editor)

Meetings:

November 20, 1978
February 26, 1979
June 14, 1979

Accomplishments: During the reporting period, the Committee made recommendations to the NLM on a variety of TIP activities, including CHEMLINE, the Laboratory Animal Data Bank, the Toxicology Data Bank, the Toxicology Information Response Center, and TOXLINE. The Committee also offered guidance on the contribution of the TIP to other major programs in toxicology and toxicology information, including the new National Toxicology Program and the Chemical Substances Information Network being administered by EPA

COOPERATIVE STUDIES

PANEL ON EVALUATION OF HAZARDS ASSOCIATED WITH MARITIME PERSONNEL EXPOSURE TO A MULTIPLICITY OF CARGO VAPORS

Summary Description: The Panel was organized under the auspices of the Committee on Maritime Hazardous Materials of the NRC Commission on Sociotechnical Systems, because there is concern in the maritime industry that some personnel can be exposed consecutively to different chemicals in the course of their daily duties. Because there is a possibility of interaction, synergism, potentiation, or inhibition of chemical effects, the U.S. Coast Guard requested an evaluation of the problem. The study was planned in two phases. In the first, possible body sites of chemical interaction--such as lung, kidney, liver, and skin--were studied with respect to their known roles of influencing absorption, metabolism, and excretion of chemicals. Data-base sources were searched to determine the availability of toxicologic data that would demonstrate chemical interactive effects. After review of the report of the first phase by the sponsor, a second phase may be undertaken wherein a series of chemicals, selected by the Coast Guard, will be studied by applying the principles developed in the first phase. In this manner, it is hoped, the interactive potential of various chemicals can be demonstrated.

Membership:

Sheldon D. Murphy, Chairman
Frederick W. Oehme, Co-Chairman
Donald J. Ecobichon
Jerry R. Mitchell
Marvin A. Schneiderman
Carl C. Smith
Christopher F. Wilkinson
Hanspeter Witschi
James S. Woods

Staff:

Gordon W. Newell
Frances M. Peter (Editor)

Meetings:

July 13, 1978
September 22, 1978
December 6, 1978
January 11-12, 1979
March 9, 1979
May 9-11, 1979

PANEL ON THE HEALTH EFFECTS OF DIESEL EMISSIONS OF THE DIESEL IMPACTS STUDY COMMITTEE

Summary Description: At the request of the Office of Science and Technology Policy of the White House, three U.S. government agencies--the Environmental Protection Agency, the Department of Energy, and the Department of Transportation--entered into a contract with the NAS in May 1979. The contract requires that the NAS conduct an 18-month study of the multiple impacts of diesel emissions. The study will entail an evaluation of the health and environmental effects of diesel emissions, an assessment of the associated control technologies, and a description of the policy options that may be pursued in regulating the use of the diesel engine. Because of the multifaceted nature of the task, a coordinating parent committee, the Diesel Impacts Study Committee, was established under the leadership of the Assembly of Engineering in May 1979. A number of panels are being formed to address specific tasks related to health, technology, the environment, and policymaking. To ensure adequate transfer of information, the chairman and some members of each of the panels are also designated as members of the Committee.

The Panel on the Health Effects of Diesel Emissions was established in June 1979 by the ALS under the auspices of the BOTEHH. This Panel will perform three major tasks: review and assess all available pertinent scientific information from academic, industrial, and government sources in the United States and abroad; evaluate the adequacy of current and planned research in academic, government, and industrial sources and formulate an appropriate research agenda that can furnish needed information on health effects; and compare the carcinogenic and other risks to health that may be associated with diesel and gasoline emissions. The work of the Panel will be incorporated into two reports that will be submitted to the sponsoring agencies.

Membership (Committee):

Henry Rowen, Chairman
Kenny S. Crump
Bernard Goldschmidt
Herschel Griffin
Ian T. T. Higgins
William L. Hogan

James R. Johnson
Paul Kotin
William Lux
Robert F. Sawyer
Richard O. Simpson
Bruce Stuart

Panel on the Health Effects of Diesel Emissions:

Herschel Griffin, Chairman
David Brusick
Neal Castagnoli
Bernard Goldschmidt
Ian T. T. Higgins

Dietrich Hoffmann
Steven Horvath
James Pitts
Bruce Stuart
Hanspeter Witschi

Staff:

Sushma Palmer
Scott Baker
George Hoffmann

Michael Lambert
Frances M. Peter (Editor)

Meetings:

May 17-18, 1979
June 29-July 1, 1979 (Committee and Panel, Woods Hole, MA)

Accomplishments: The reporting has been used largely for data collection. An intensive effort has been made to solicit published and unpublished information from government and other sources. Simultaneously, contacts have been made to obtain research program plans from institutions that are studying the health effects of diesel emissions in the United States and abroad. At its first meeting, the Panel held discussions with invited researchers from the fields of inhalation and pulmonary toxicology, carcinogenesis, mutagenesis, and epidemiology. The Panel later divided itself into working groups on these subjects and has developed a tentative outline for its first report. The next meeting of the Committee and the Panel will be a workshop devoted essentially to the preparation of a draft of the first report.

PANEL ON TOXICOLOGY OF COMMITTEE TO REVIEW POTOMAC RIVER ESTUARY WATER TREATMENT PLANT PROJECT (SPONSOR: ASSEMBLY OF ENGINEERING)

Summary Description: At the direction of Congress, the Army Corps of Engineers is studying the water-supply needs of the Washington metropolitan area and evaluating various water resources in the Potomac River Basin and their associated impacts on human health and welfare. The object is to recommend the most effective way to develop the resources best suited for supplying the area with a dependable long-term supply of water. The Committee has altered its direction and will henceforth address the generic problem of wastewater reuse.

The Panel on Toxicology is evaluating the public-health significance of and potential risks of chronic illness from exposure to chemicals in product water from the Washington area experimental water-treatment plant. Guidance is given concerning the types of compounds of importance as hazards to human health, methods of testing the toxicity of complex mixtures in water, and evaluation of significance of ranges of concentrations of chemicals. In response to the new direction of the Committee, the Panel will be charged with the development of criteria for the human consumption of reused wastewater.

Membership:

Frank L. Lyman, Chairman
Joseph F. Borzelleca
Frederick W. Oehme

Staff:

Robert G. Tardiff

Meeting:

July 17, 1978

Accomplishments: The Panel reviewed the Corps of Engineers report, Final Environmental Impact Statement Concerning Proposed Potomac River Water Supply Structures. The Panel made recommendations about the type of data needed to evaluate the plant operations from a health standpoint.

ASSEMBLY OF LIFE SCIENCES REPORTS

ASSEMBLY OF LIFE SCIENCES REPORTS

Adjuvant 5-Fluorouracil in Large Bowel Cancer Medical Follow-up Agency, Division of Medical Sciences. G. A. Higgins, Jr., H. H. LeVeen, J. McCaughan, and J. McElhinney. In A. Gerard, Ed. Gastrointestinal Tumors: A Clinical and Experimental Approach. Proceedings of an International Symposium sponsored by the European Organization for Research and Treatment of Cancer, Brussels, April 14-15, 1977. Brussels, Belgium: Institut Jules Bordet, 1978.

Adjuvant Radiation Therapy in Colon Cancer Medical Follow-up Agency, Division of Medical Sciences. G. A. Higgins. In International Advances in Surgical Oncology. Vol. 2. New York: Alan R. Liss, Inc., 1979.

Animal Models for Research on Contraception and Fetility: Proceedings of a Symposium held May 8-10, 1978 Institute of Laboratory Animal Resources, Division of Biological Sciences. (in press)

Animals as Monitors of Environmental Pollutants: Proceedings of a Symposium held June 1-3, 1977, at the University of Connecticut, Storrs Institute of Laboratory Animal Resources, Division of Biological Sciences. (in press)

A Selected Annotated Bibliography on Breastfeeding, 1970-1977 Committee on Nutrition of the Mother and Preschool Child, Food and Nutrition Board, Division of Biological Sciences. National Academy of Sciences, 1978. 63 pp. ISBN 0-309-02796-9; $6.50.

Asthma and Subsequent Mortality in World War II Veterans Medical Follow-up Agency, Division of Medical Sciences. C. D. Robinette and J. F. Fraumeni, Jr. Journal of Chronic Diseases, June 1978.

Bromotrifluoromethane--A Literature Review Report to the National Aeronautics and Space Administration. Committee on Toxicology, Board on Toxicology and Environmental Health Hazards. May 1979. (unpublished)

Chloropyrifos--Risk Assessment and Inhalation Exposure Limits Report to the Bureau of Medicine and Surgery, Department of the Navy. Committee on Toxicology, Board on Toxicology and Environmental Health Hazards. November 1978. (unpublished)

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Chronic Alcoholism and Subsequent Mortality in World War II Veterans Medical Follow-up Agency, Division of Medical Sciences. C. D. Robinette, Z. Hrubec, and J. F. Fraumeni, Jr. American Journal of Epidemiology, June 1979.

Contraceptive Technology: Proceedings of a Symposium on Contraceptive Technology held May 16-17, 1978, in Washington, D.C. Division of Medical Sciences. (in press)

Drinking Water and Health. Volume II Includes: The Chemistry of Disinfectants in Water: Reaction and Products; The Disinfection of Drinking Water; and An Evaluation of Activated Carbon for Drinking Water Treatment. Committee on Safe Drinking Water, Board on Toxicology and Environmental Health Hazards. (in press)

Drinking Water and Health. Volume III Includes: Toxicity of Selected Drinking Water Contaminants; Problems of Risk Estimation; Epidemiological Studies of Cancer Frequency and Certain Organic Constituents of Drinking Water; Water Hardness and Cardiovascular Disease; and The Contribution of Drinking Water to Mineral Nutrition in Humans. Committee on Safe Drinking Water, Board on Toxicology and Environmental Health Hazards. (in press)

Effective Interventions to Reduce Infection in Malnourished Populations: Proceedings of a Symposium held June 12-16, 1977, in Port-au-Prince, Haiti. Subcommittee on Interactions of Nutrition and Infection, Committee on International Nutrition Programs, Food and Nutrition Board, Division of Biological Sciences. G. T. Keusch and M. Katz, Eds. American Journal of Clinical Nutrition, November-December 1978.

Emergency Medical Services at Midpassage Committee on Emergency Medical Services, Division of Medical Sciences. 1978. 75 pp.

Experience of the Veterans Administration Surgical Adjuvant Group Medical Follow-up Agency, Division of Medical Sciences. G. A. Higgins, Jr., and T. W. Shields. In F. Muggia and M. Rozencweig, Eds. Lung Cancer: Progress in Therapeutic Research. New York: Raven Press, 1979.

Exposure Levels and Potential Biologic Effects of the PAVE PAWS Radar System Panel on the Extent of Radiation from the PAVE PAWS Radar System. 1979. 102 pp.

Food and Color Additives Survey Segments of the Survey completed by the Committee on GRAS List Survey--Phase III. Food and Nutrition Board, Division of Biological Sciences.

Use-Level Data for Federal Register Substances, October 1978.
1976 Annual Poundage Data, October 1978.
1975 Resurvey of the Annual Poundage of Food Chemicals Generally Recognized as Safe, November 1978. Available from NTIS: PB 288-081. $4.50 paper; $3.00 microfiche.
Maximal Levels of Use for GRAS Substances Included in the 1977 Food and Color Additives Survey, June 1979.

Food Chemical Codex, Third Supplement, Second Edition. Food and Nutrition Board, Division of Biological Sciences. 1978. 44 pp. Available only with purchase of Food Chemicals Codex, Second Edition.

Formaldehyde Report to the Environmental Protection Agency. Emergency Response Group, Committee on Toxicology, Board on Toxicology and Environmental Health Hazards. May 1979. (unpublished)

Guide for the Care and Use of Laboratory Animals Committee on Care and Use of Laboratory Animals, Institute of Laboratory Animal Resources, Division of Biological Sciences. 1978. 70 pp. Available from Office of Science and Health Reports, Division of Research Resources, National Institutes of Health.

Histologic Typing of Liver Tumors of the Rat Subcommittee on Rat Liver Tumors, Committee on Histologic Classification of Laboratory Animal Tumors, Institute of Laboratory Animal Resources, Division of Biological Sciences. *Journal of the National Cancer Institute*. (in press)

International Assistance for Maternal and Infant Nutrition in Developing Countries: Report of a Conference held January 30-31, 1978 Committee on International Nutrition Programs, Food and Nutrition Board, Division of Biological Sciences. August 1978. (unpublished)

Laboratory Animal Data Bank Review and evaluation by Panel on the Laboratory Animal Data Bank, Institute of Laboratory Animal Resources, Division of Biological Sciences. August 1978. (unpublished)

Laboratory Animal Housing: Proceedings of a Symposium held September 22-23, 1976, at Hunt Valley, Maryland Institute of Laboratory Animal Resources, Division of Biological Sciences. National Academy of Sciences, 1978. 228 pp. ISBN 0-309-02790-X; $12.00.

Laboratory Animal Management: Cats Committee on Cats, Institute of Laboratory Animal Resources, Division of Biological Sciences. ILAR News, Summer 1978.

Laboratory Animal Medicine: Guidelines for Education and Training Committee on Education, Institute of Laboratory Animal Resources, Division of Biological Sciences. ILAR News, Winter 1979.

Laboratory Animal Records Committee on Laboratory Animal Records, Institute of Laboratory Animal Resources, Division of Biological Sciences. April 1979.

Long-Term Survivors After Resection of Lung Carcinoma Medical Follow-up Agency, Division of Medical Sciences. T. W. Shields, E. W. Humphrey, G. A. Higgins, Jr., and R. J. Keehn. Journal of Thoracic and Cardiovascular Surgery, October 1978.

Microbiological Measures of Recreational Water Quality Committee on Microbiological Standards for Recreational Water, Board on Toxicology and Environmental Health Hazards. March 1979. (unpublished)

Multiple Sclerosis and Canine Distemper in Iceland Medical Follow-up Agency, Division of Medical Sciences. S. D. Cook, P. C. Dowling, J. Norman, and S. Jablon. Lancet, February 1979. (letter to the editor)

Odors from Stationary and Mobile Sources Committee on Odors from Stationary and Mobile Sources, Board on Toxicology and Environmental Health Hazards. (in press)

o-Nitroaniline Report to the Environmental Protection Agency. Emergency Response Group, Committee on Toxicology, Board on Toxicology and Environmental Health Hazards. May 1979. (unpublished)

Preoperative Radiotherapy for Colorectal Cancer Medical Follow-up Agency, Division of Medical Sciences. G. A. Higgins, Jr., E. W. Humphrey, J. H. Amadeo, and G. L. Juler. In A. Gerard, Ed. Gastrointestinal Tumors: A Clinical and Experimental Approach. Proceedings of an International Symposium sponsored by the European Organization for Research and Treatment of Cancer, Brussels, April 14-15, 1977. Brussels, Belgium: Institut Jules Bordet, 1978.

Program Development for Interventions in the Malnutrition-Infection Complex Special report resulting from Haiti Symposium. Subcommittee on Interactions of Nutrition and Infection, Committee on International Nutrition Programs, Food and Nutrition Board, Division of Biological Sciences. November 1978. 25 pp. (unpublished)

Saccharin: Technical Assessment of Risks and Benefits Report No. 1. Committee for a Study on Saccharin and Food Safety Policy, Assembly of Life Sciences/Institute of Medicine. November 1978.

Safe Exposures for Destruction of 3-Quinuclidinyl Benzilate (BZ) Committee on Military Environmental Research, Division of Medical Sciences. May 1979. (unpublished)

Sodium-Restricted Diets and the Use of Diuretics Committee on Sodium-Restricted Diets, Food and Nutrition Board, Divison of Biological Sciences. 1979. 38 pp.

Sulfur Oxides Committee on Sulfur Oxides, Board on Toxicology and Environmental Health Hazards. National Academy of Sciences, 1978. 220 pp. ISBN 0-309-02862-0; $9.00.

Technology of Fortification of Cereal-Grain Products: Proceedings of a Workshop Subcommittee on Food Technology, Committee on Food Protection, Food and Nutrition Board, Division of Biological Sciences. 1978. Available from NTIS: PB 281-476/AS. $7.25 paper; $3.00 microfiche.

The Case for Adjuvant 5-Fluorouracil in Colorectal Cancer Medical Follow-up Agency, Division of Medical Sciences. G. A. Higgins, Jr., L. E. Lee, Jr., R. W. Dwight, and R. J. Keehn. Cancer Clinical Trials, Spring 1978.

The Duffy Blood Group Phenotype in American Blacks Infected with Plasmodium Vivax in Vietnam Medical Follow-up Agency, Division of Medical Sciences. L. H. Miller, M. H. McGinniss, P. V. Holland, and P. Sigmon. American Journal of Tropical Medicine and Hygiene, Vol. 27, 1978.

The National Academy of Sciences-National Research Council Twin Registry: Ten Years of Operation Medical Follow-up Agency, Division of Medical Sciences. Z. Hrubec and J. V. Neel. In W. E. Nance, Ed. Twin Research. Proceedings of the Second International Congress on Twin Studies, held August 29-September 1, 1977, in Washington, D.C., Part B. Biology and Epidemiology. Progress in Clinical and Biological Research. Vol. 24B. New York: Alan R. Liss, Inc., 1978.

Toluene--Recommendations for Use in Tests for Water and Sediments in Lubrication Oil Report to the U.S. Coast Guard. Committee on Toxicology, Board on Toxicology and Environmental Health Hazards. October 1978. (unpublished)

Toxicological Studies on TNT and TNT Wastewaters: Review of Proposal Committee on Military Environmental Research, Division of Medical Sciences. April 1979. (unpublished)

Twin Study of Multiple Sclerosis: An Epidemiologic Inquiry Medical Follow-up Agency, Division of Medical Sciences. A. R. Bobowick, J. F. Kurtzke, J. A. Brody, Z. Hrubec, and M. Gillespie. Neurology, October 1978.

ASSEMBLY OF LIFE SCIENCES
CORRESPONDING SOCIETIES

ASSEMBLY OF LIFE SCIENCES CORRESPONDING SOCIETIES

The National Research Council has long recognized the importance of maintaining close liaison with the many national scientific societies organized to encourage and promote research and better communication within specific scientific disciplines. The administrative reorganization of the NRC in 1973 required a redefinition of relationships between the professional societies and the new Assemblies and Commissions of the NRC. Each of these components was made responsible for the development of its own program to meet U.S. and international needs with a single annual review and authorization by the NRC Governing Board.

The Assembly of Life Sciences realized that the scientific organizations of the many disciplines within the life sciences could make substantial contributions to the effectiveness of the Assembly's programs and that they could be a convenient and valuable channel through which aid could be solicited from outstanding scientists in specific fields. In addition, the Assembly wished to ensure that these organizations would be periodically informed of events and progress within the Assembly, so that they could, in turn, inform their members.

Acting on a personal invitation from the chairman of the ALS, a number of societies that had been affiliated with the former Divisions of Biology and Agriculture and of Medical Sciences became Corresponding Societies of the Assembly. More recently, several additional societies have asked to become Corresponding Societies and have been accepted as such.

Following is a list of the ALS Corresponding Societies as of June 30, 1979.

Aerospace Medical Association
American Academy of Neurology
American Academy of Orthopaedic Surgeons
American Academy of Pediatrics
American Agricultural Economics Association
American Association for Cancer Research
American Association for Laboratory Animal Science
American Association of Anatomists
American Association of Blood Banks
American Association of Cereal Chemists
American Association of Clinical Chemists
American Association of Immunologists
American Association of Pathologists
American College of Cardiology
American College of Laboratory Animal Medicine
American College of Obstetricians and Gynecologists
American College of Physicians
American College of Surgeons
American College of Toxicology

American College of Veterinary Toxicologists
American Dairy Science Association
American Dental Association
American Federation for Clinical Research
American Fisheries Society
American Gastroenterological Association
American Genetic Association
American Industrial Hygiene Association
American Institute of Nutrition
American Meat Science Association
American Medical Association
American Neurological Association
The American Ornithologists Union
American Pharmaceutical Association
The American Physiological Society
The American Phytopathological Society
American Psychiatric Association
American Public Health Association
American Roentgen Ray Society
The American Society for Cell Biology
American Society for Clinical Investigation
American Society for Horticultural Science
American Society for Microbiology
American Society for Pharmacology and Experimental Therapeutics
American Society for Photobiology
American Society of Agricultural Engineers
American Society of Agronomy
American Society of Animal Science
American Society of Biological Chemists
American Society of Clinical Pathologists
American Society of Hematology
American Society of Human Genetics
American Society of Ichthyologists and Herpetologists
American Society of Mammalogists
American Society of Parasitologists
The American Society of Plant Physiologists
American Society of Plant Taxonomists
The American Society of Tropical Medicine and Hygiene
The American Society of Zoologists
The American Surgical Association
American Urological Association
Animal Behavior Society
Association for Tropical Biology
Association of American Physicians
Biometric Society, Eastern North American Region
Biophysical Society
Botanical Society of America
Crop Science Society of America
The Ecological Society of America
Entomological Society of America
Environmental Mutagen Society
Genetics Society of America
Health Physics Society
Institute of Food Technologists
International Solar Energy Society, American Section
The Mycological Society of America
The Paleontological Society
Phycological Society of America
The Poultry Science Association, Inc.
Radiation Research Society
Reticuloendothelial Society
Society for Cryobiology
Society for Developmental Biology
Society for Economic Botany
Society for Gynecologic Investigation
Society for Investigative Dermatology
Society for Neuroscience
Society for Pediatric Research
Society for Range Management
Society of American Foresters
Society of General Physiologists
Society of Nematologists
The Society of Systematic Zoology
The Society of Toxicology
Soil Science Society of America
The Teratology Society
Weed Science Society of America
The Wildlife Society